Strategic Skills Initiative Skills Shortage ID Report
Cover Sheet

Economic Growth Region # 8 : _____

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Judy Gray	Orange Cty. Econ. Dev. Partnership	Executive Director	
Ron Arnold	Daviess County Econ. Dev. Corp	Director	
Richard Rampley	Dept. of Workforce Development	Program Director	
Steve Bryant	Bloomington Life Sciences Partnership	Director	
Brenda McLane	Ivy Tech Community College	Workforce & Econ. Dev. Director	
Ron White	Indiana University Continuing Ed.	Director	
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I. Executive Summary

Economic Growth Region 8 - Strategic Skills Initiative

Built towards the goal of creating new jobs and raising Hoosier income, the Strategic Skills Initiative (SSI) is a revolutionary effort that fights unemployment by going directly to the root causes. SSI focuses on two primary goals:

- Identify and alleviate shortages projected to exist in critical occupations and specific skill sets within high-wage Indiana industries; and,
- Instill a lasting, demand-driven approach to workforce development at the regional and local level.

This initiative will produce three reports that will be submitted to the Indiana Department of Workforce Development (DWD) over the next few months. These reports will: identify occupation and skill shortages, determine the root causes of the shortages, and develop solutions that are directly tied to the root causes.

This Occupational and Skills Shortages Report is the first of the three reports for Economic Growth Region (EGR) 8. The report was produced by Corcoran & Wishart, LLC with the guidance of the Region 8 SSI Executive Team, Consortia and the assistance of Vincennes University staff and WorkOne staff from Bloomington, Bedford and Linton. EGR 8 is a new area composed of Brown, Monroe, Owen, Lawrence, Greene, Martin, Daviess and Orange counties.

Consortia Role

The Region 8 Consortia is comprised of key economic development representatives, employer representatives for key industries, business association members, educational representatives and others. The Consortia advises the SSI agent and staff in the application for funds from DWD and the development of the three reports. An Executive Team is established to meet more frequently to review progress. The Executive Team is composed of members who have expressed an interest in spending more time on this process.

Methodology

Based upon available labor market information from the Indiana Business Research Center (IBRC), DWD, Census Data, prior local research reports, ERISS employer survey data and our own employer interviews conducted by local WorkOne staff in Bloomington, Bedford and Linton, this report identifies industry sectors that are experiencing growth, shortages of qualified workers or skill shortages in the workforce for the available jobs now and in future years to 2012. The Consortia and Executive Team was engaged in the process and made decisions regarding the sectors and occupations that should be researched.

Selected Industry Sectors and Occupations

After an in-depth review of the data and substantial discussion, the Executive Team agreed that **manufacturing; health care; professional, scientific, and technical services; and hospitality** were the key industries within EGR 8. We used a priority ranking system for selecting key industries, occupations and shortages. Manufacturing employs more workers in EGR 8 than any other sector. Health Care shows significant job growth and represents 11.7% of all jobs in EGR 8. Professional, Scientific and Technical Services largely represents jobs associated with the Naval Surface Warfare Center at Crane.

Within those sectors we focused our research on these occupations within those sectors: First Line Supervisors/Managers of Production and Operating Workers; Team Assemblers; Registered Nurses; Licensed Practical Nurses; Nurses Aides; Respiratory Therapists; Electrical and Electronics Engineering Technicians; Drafting, Engineering and Mapping Technicians, all other, and Hospitality and Tourism. The chart below indicates the projected shortages that were identified for the selected occupations:

Occupation	Projected 2 Year Worker Shortage (through 2007)	Projected 7 Year Worker Shortage (through 2012)
First Line Supervisors of Production Workers	18	18
Team Assemblers	234	694
Registered Nurses	191	351
Licensed Practical Nurses	18	148
Nurses Aides	59	94
Respiratory Therapists	26	26
Electrical and Electronics Engineering Techs	134	418
Drafting, Engineering and Mapping Techs, other	0	0

Finally, hospitality occupations encompass a wide range of jobs in the Tourism and Hospitality sector. EGR 8 has significant Hospitality and Tourism employment in all eight counties with numerous State Parks, and Indiana University cultural and sporting events. Most significantly, Orange County will experience the addition of 1,100 jobs in the next year due to the opening of the casino and the expansion and renovation of the French Lick Springs Resort and the West Baden Springs Resort.

We analyzed Jobs and Wages, Training and Skills, Career Paths and Availability of Skilled Workers for each occupation listed above and included our analysis in this report. Based upon research and discussions with employers in the hospitality and tourism business, the Executive Team and Consortium in EGR 8 agreed that the best approach to meet worker shortages in this industry was to address necessary skills sets rather than specific occupations.

The Root Causes and Solutions Reports will further identify the potential causes of the projected worker shortages in these industries and occupations and propose solutions to address the identified needs.

Basic Skills, Job Readiness and Work Ethic

Skills in demand that have frequently been identified in the top ten in recent weeks for the counties of EGR 8 include: following detailed instructions, managing time effectively, applying good listening skills, reading and applying information, and working as a team member. The SSI Consortium members as well as numerous other employers that participated in discussions with staff working on the SSI project also agreed that these skills are commonly deficient among their applicants and/or employees.

A frequent discussion item at SSI Consortium meetings and with employers who participated in interviews with WorkOne staff is the lack of job readiness and/or work ethic among applicants and employees. Many employers expressed a willingness to train workers on the specific duties they must perform on the job. However, attendance, punctuality, commitment, teamwork, and basic skills such as reading, writing, speaking, and mathematics are skills and abilities that employers do not have the time, resources and expertise to teach in the workplace. Further, the absence of these skills costs local employers thousands of dollars each year in high turnover rates, lost productivity, excessive waste, poor quality, and customer complaints.

Workforce development and economic development must work together to grow jobs and personal income for the residents of our region. Regardless of the occupation, the quality and availability of the local workforce has a huge impact upon the economic development efforts of the region. Employers believe the quality of the workforce and the availability of labor are the two most important factors related to business success.

The Root Causes and Solutions Reports will further explore the reasons why so many employers in the region's key industries struggle to find workers who have these skills and identify ways to improve the overall job readiness and retention skills of the workforce.

II. Identification of Industry Sectors That Are Key to the Region

This initiative will produce three reports that will be submitted to the Indiana Department of Workforce Development (DWD) over the next few months. These reports will: identify occupation and skill shortages, determine the root causes of the shortages, and develop solutions that are directly tied to the root causes.

This Occupational and Skills Shortages Report is the first of the three reports for Economic Growth Region (EGR) 8. The report was produced by Corcoran & Wishart, LLC with the guidance of the Region 8 SSI Executive Team, Consortia and the assistance of Vincennes University staff and WorkOne staff from Bloomington, Bedford and Linton. EGR 8 is a new area composed of Brown, Monroe, Owen, Lawrence, Greene, Martin, Daviess and Orange counties.

The Region 8 Consortia is comprised of the following key economic development representatives, employer representatives for key industries, business association members, educational representatives and others:

Judy Gray,* Orange County Economic Development Partnership
Ron Arnold,* Daviess County Economic Development Corporation
Steve Bryant,* Bloomington Life Science Partnership
Gary Shelley, Cinergy/PSI
Linda Williamson, Bloomington Economic Development Corp.
Kirk White, Indiana University Community Relations
Bruce Wade, Bloomington Hospital Human Resources Dept.
Carole Maloney, Greater Bloomington Chamber of Commerce
Charles L. Dibble, Greene County Economic Development Corporation
Adele Bowden-Purlee, Bedford Area Chamber of Commerce
Jo Arthur, Southern Indiana Development Commission
Keith Schnulle, French Lick Springs Resort and Casino
Richard Rampley,* Indiana Department of Workforce Development
Bobby G. Minton,* Laborers Local #741
Brenda McLane,* Ivy Tech Community College Workforce & Economic Development
Chuck Martindale, Hoosier Energy
Ron White,* Indiana University Bloomington Continuing Studies
Darrell W. White,* Boston Scientific
Steve Johnson, Paoli, Inc.
Sam Allison, Lawrence County Growth Council
Terri Evans, Manchester Tank
Stacey Cooley, Owen County Chamber of Commerce
Steve Gault, WorkOne Bedford
Nancy Karazsia, WorkOne Linton
* Executive Team Member

The Consortia advises the SSI agent and staff in the application for funds from DWD and the development of the three reports. An Executive Team is established to meet more frequently to review progress. The Executive Team is composed of members who have expressed an interest in spending more time on this process.

In order to determine the key industries in Economic Growth Region (EGR) 8, a team comprised of representatives from the Bloomington, Bedford and Linton Department of Workforce Development (DWD) offices, Vincennes University, and Corcoran & Wishart, LLC conducted a broad review of labor market information. These representatives participated in the helpful on-line sessions conducted by Workforce Associates and every effort was made to utilize the recommended methodology to the fullest extent in reaching the conclusions included in this report.

The core agent and staff of the WorkOne system took advantage of this opportunity for technical assistance not only for the purposes of composing the Occupational and Skills Shortages Report, but also to ensure that a number of staff developed or enhanced their capacity to understand and analyze labor market information effectively. This increased capacity should serve helpful not only on the SSI project, but in the subsequent focus of WorkOne resources to more effectively meet the workforce needs of the region.

Based upon the review of available labor market information, twelve industries by 2-digit North American Industry Classification System (NAICS) sector were identified and targeted for further study. The initial twelve industries and their respective NAICS codes were: Mining (21), Construction (23), Manufacturing (31-33), Wholesale Trade (42), Retail Trade (44-45), Transportation and Warehousing (48-49), Professional, Scientific, and Technical Services (54), Administrative and Support and Waste Management and Remediation (56), Educational Services (61), Health Care (62), Accommodation and Food Service (72) and Public Administration (92).

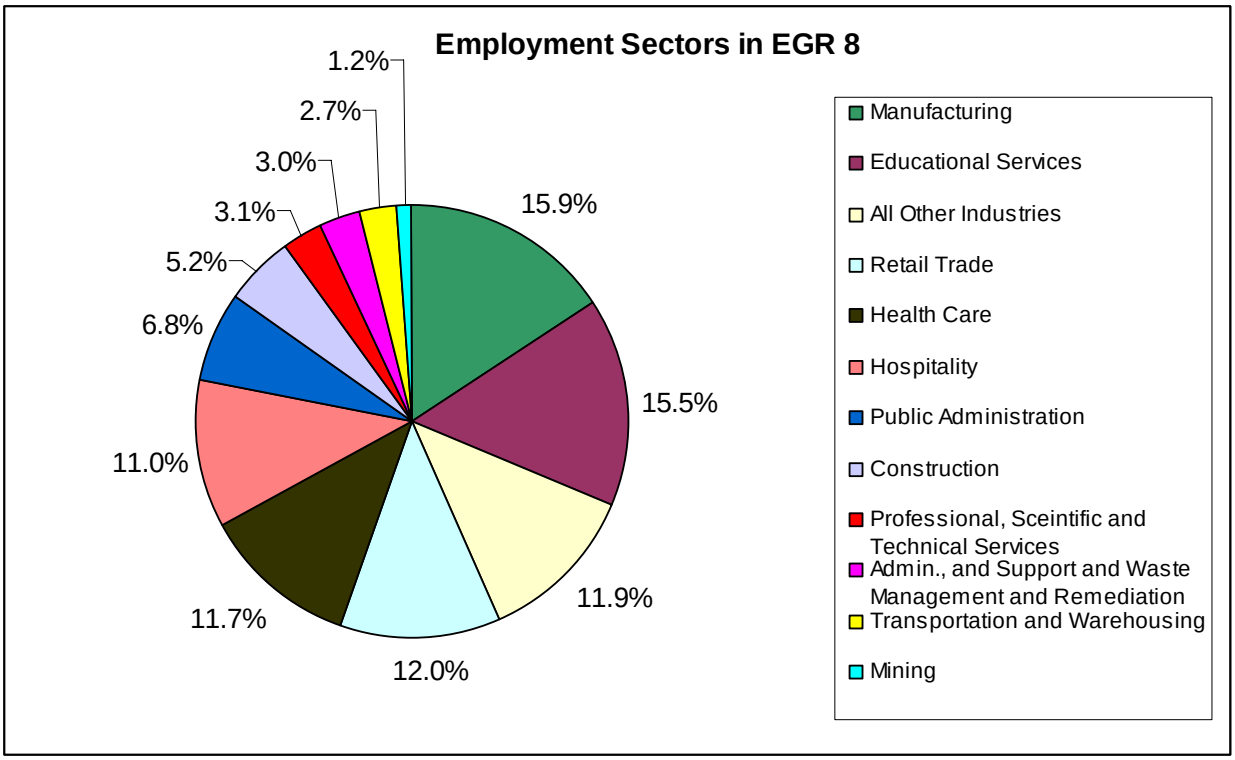
In order to determine which of these industries are critical to the economy of EGR 8, a more in-depth review of available data was conducted to determine how each of the twelve industries ranked on several significant measures. The complete results of this review were used by the Strategic Skills Initiative (SSI) Executive Team in their determination of the key industries. These results are included in the Appendix A.

Although it is understood that any industry that brings economic and employment opportunities to the region is important to the local economy, the ultimate goal of the SSI project is to identify a small number of occupations in key industries and/or skills sets that are facing critical shortages between the present and the year 2012. Thus, the Executive Team set out to focus on a maximum of 4 to 5 industries that could be identified as critical to the regional economy.

Although numerous statistics and data items were researched, the following key questions were of great importance to the Executive Team as they began identifying the top industries in the region:

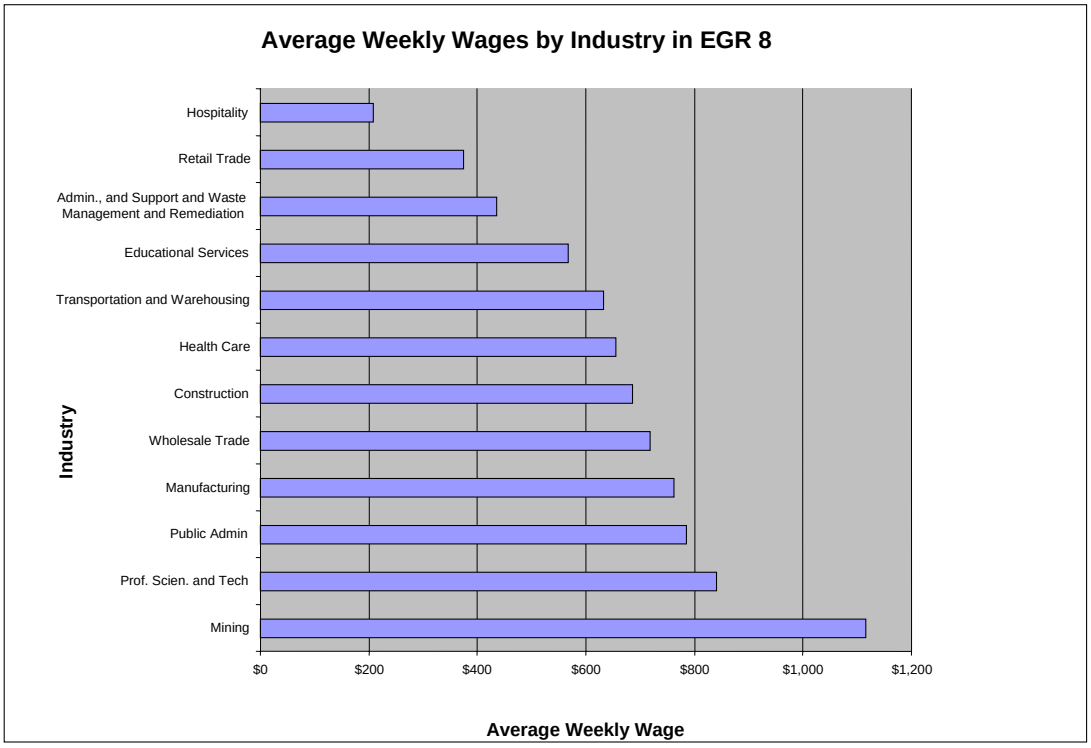
- Which industries employ the most workers?
- Which industries pay the best?
- Which industries have experienced the highest percent of growth in the past several years?
- Which industries will offer the most job openings in the next few years?
- Which industries have the highest location quotient when compared to the Midwest?

To determine which industries provide the most jobs in EGR 8, data from the Indiana Business Research Center was utilized to identify those sectors by 2 digit NAICS code that account for the largest number of jobs within EGR 8. As indicated by the chart below, manufacturing, educational services, retail trade, health care, and hospitality are the top five industries. The largest sector, manufacturing, employed 18,124 workers in the 4th quarter of 2004.



Source: Indiana Business Research Center (IBRC), 4th Quarter 2004 data
Note: The Hospitality sector includes both the Food Service and Accommodation NAICS sector and the Arts, Entertainment and Recreation Sector.

Average weekly wage data available from the Indiana Business Research Center was used to identify which of the targeted 12 industries had the highest average weekly wages in the 4th quarter of 2004 as represented by the chart below.



Source: IBRC, 4th Quarter 2004 data
Note: The Hospitality sector includes only wages from Food Service and Accommodation ($208 per week) NAICS sector. Arts, Entertainment and Recreation Sector average wage is $335 per week .

Of the 12 industries that were targeted, the top five industries based on average weekly wage were Mining; Professional, Scientific and Technical Services; Public Administration; Manufacturing; and Wholesale Trade.

With the availability of large amounts of research and statistics, the Executive Team discussed ways to sort through the data and best determine which industries were key to the economy of our region. A number of industries can appear to be very crucial to the region when only a single piece of data is reviewed. For example, mining was one of the best paying industries with an average weekly wage of $1,116 in the 4th quarter of 2004. If only wage data is considered, mining appears to be one of the most key industries in the area. By including data on the number of workers in this industry in our region, however, mining begins to look less significant than it did when only wage data was reviewed. With only 1.2% of the region's workers employed in the mining industry, the group found it difficult to reach the conclusion that it is one of the most critical industries within the economy of the region.

The Executive Team found that the importance of several industries became easier to see when the answers to all five of the initial questions were reviewed simultaneously. The table below includes the top ten industries for each of the categories including most jobs, highest pay, fastest growth, projected openings and location quotient:

	Most jobs in EGR 8[1]	Highest Avg. Weekly Pay in EGR 8[2]	Fastest % of Growth in EGR 8[3]	Projected Openings in EGR 8[4]	Location Quotient when compared to Midwest[5]
1	Manufacturing	Mgmt. of Co.	Prof., Scient., Tech	Health Care	Mining
2	Educational Svc.	Mining	Adm., Supt., Waste	Educational Svc.	Educational Svc.
3	Retail Trade	Utilities	Wholesale Trade	Public Admin.	Food Svc/Accomm
4	Health Care	Prof, Scient, Tech	Health Care	Prof., Scient., Tech	Utilities
5	Food Svc/Accomm	Public Admin	Food Svc/Accomm	Construction	Public Admin.
6	Public Admin	Manufacturing	Finance and Ins.	Adm., Supt., Waste	Manufacturing
7	Construction	Wholesale Trade	Construction	Transprt/Warehse	Construction
8	Prof., Scientific and Tech.	Finance and Insur.	Educational Svc.	Food Svc/Accomm	Retail
9	Adm., Supt., Waste Mgmt and Remed	Construction	Arts, Ent., Rec.	Arts, Ent., Rec.	Health Care
10	Other Services	Health Care	Real Estate	Other Services	Real Estate

1. Source: IBRC data for 4th Quarter 2004
2. Source: IBRC data for 4th Quarter 2004
3. Source: IBRC 4th Quarter 2004 data compared to IBRC 2001 4th Quarter data.
4. Source: Occupations and Industry Projections for EGR 8 in the SSI Toolkit
5. Source: IBRC data for 4th Quarter 2004

By awarding an industry 1 point for each time it appears in the top ten on these particular data items, and eliminating those industries that score less than 3, the number of targeted industries was reduced from twelve to eight. Those eight are illustrated in color in the above chart. Those previously targeted industries that were eliminated at this phase of the research were Mining, Wholesale Trade, Retail Trade, and Transportation and Warehousing. Each of these industries is important to the economic vitality of EGR 8, however, after reviewing and discussing the data the Executive Team agreed that these industries should be eliminated from further consideration.

Upon further discussion, the Executive Team was able to eliminate three more industries. Public Administration employs significant numbers of workers, pays well, and has significant projected openings. Since these jobs are largely dependent upon the availability of public funding, the group agreed that as a non-basic industry that does not result in attracting many out-of-area customers it should be eliminated from further research.

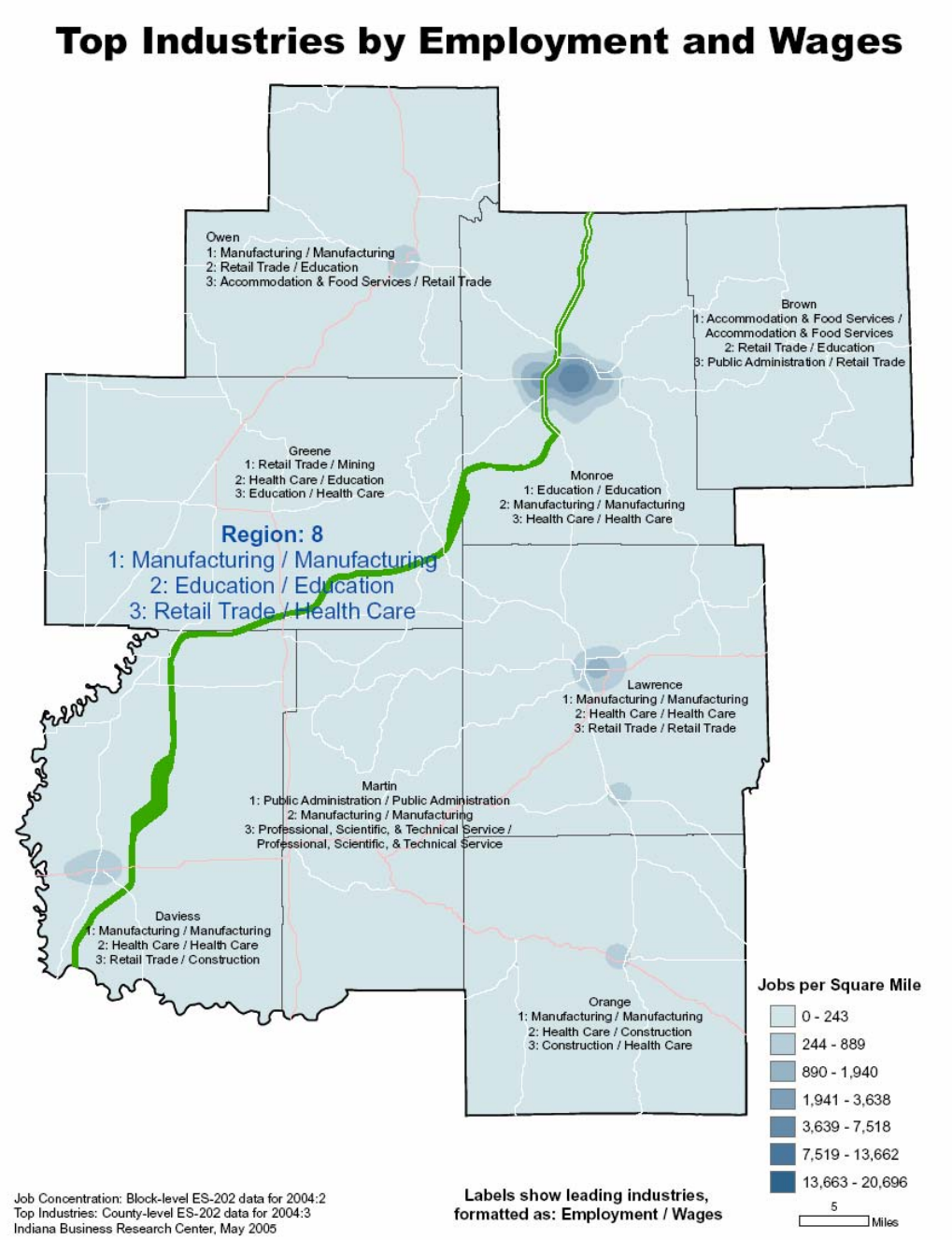
The Educational Services industry also has a strong presence in EGR 8, evidenced by not only the data items contained in the table above, but also in most of the additional research that was

performed. In addition to numerous local public school systems, EGR 8 is also fortunate to have Indiana University and Ivy Tech Community College located within our area. Upon further discussion with the Executive Team (which includes representatives from both Indiana University and Ivy Tech Community College), it was agreed that there are sufficient resources and efforts already being implemented by other state and local groups to address identified shortages of educational workers. It was suggested by the educational representatives on the Executive Team that any resources that may become available as a part of the SSI project would undoubtedly be able to be used to more effectively benefit other industry sectors.

Upon further research, the administrative and support, and waste management and remediation category was also eliminated. This industrial NAICS code encompasses many different occupations including security guards, locksmiths, carpet cleaners, janitors, tree service workers, landscapers, trash removal workers, collections agencies, answering services, water treatment workers, pest control workers, paper copying and shredding workers, and others. We concluded that although this industrial sector employs a large number of workers, that is likely because it includes such a large variety of occupations. In looking at the data on the specific occupations in this sector, not only do most occupations have relatively low pay, most of these occupations also employ relatively few workers as compared to the other industries under consideration.

After an in-depth review of the data and substantial discussion, the Executive Team agreed that the remaining occupations which include **health care; manufacturing; professional, scientific, and technical services; and hospitality** were the key industries within EGR 8. Construction was also identified as a key industry; however, the Executive Team agreed that in terms of establishing priorities for the focus of the SSI project, it should be the lowest priority of the five. Several resources already exist for the construction industry within labor unions and the Department of Labor Bureau of Apprenticeship and Training.

As future opportunities to address worker and skills shortages through the workforce development system arise, the construction industry will continue to be considered for inclusion in local efforts. The team also agreed that as cross-cutting skills sets are identified, it is likely that some of the basic skills needed in the construction industry will be included in the report and any solutions that result from the subsequent research on those particular skills sets are likely to be of benefit to the construction industry as well.



The map to the left further reaffirms the selection of these four industries as key to EGR 8.

The Executive Team took great care to ensure that the economic concerns of every county in the region would be represented in this report and subsequently at the root causes and solutions phases of the SSI project.

As indicated by this map, the four industries identified as critical to the economy of EGR 8 have a significant impact throughout the region, not just in the larger cities or counties.

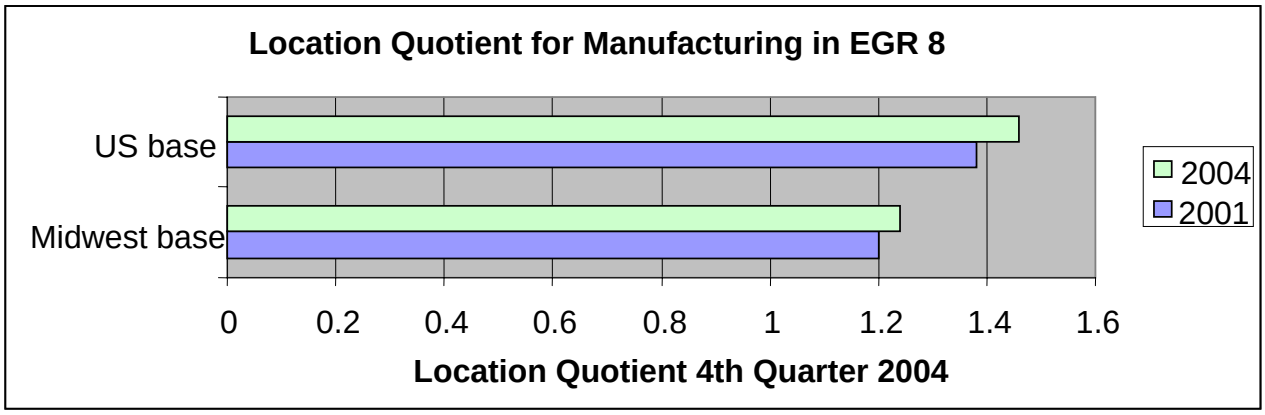
Economic development representatives participating in the discussion agreed that these four industries are currently important to the region's economy and are industries in which future growth is desirable to help the regional economy thrive. Taking a closer look at each of the four critical industries, it becomes clear that these industries are indeed crucial to the counties of EGR 8.

III. The Key Industries in EGR 8

Manufacturing:

As previously mentioned, the manufacturing sector employs more workers in EGR 8 than any other sector. With 18,124 workers employed in the 4th Quarter of 2004, manufacturing accounts for 15.9% of the jobs in our region and generated a total of $694,543,524 in wages in 2004. Manufacturing jobs also provide good wages for workers in the region. According to data available from the IBRC for the 4th quarter of 2004, the average weekly wage ($762) of manufacturing workers in EGR 8 was well below the national average weekly wage ($986) for manufacturing jobs. Although our local manufacturing jobs pay below the national average, this industry pays well above the average weekly wage ($587) for all jobs within our region.

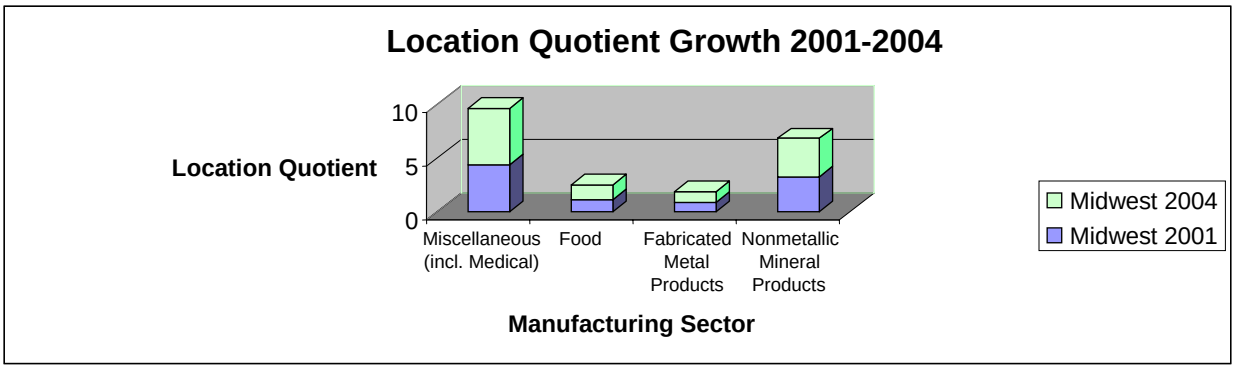
EGR 8 also appears to have a competitive advantage in the manufacturing industry. According to data from IBRC, already strong location quotients for manufacturing as compared to the Midwest and the U.S. continued to increase from 2001 to 2004 as illustrated by the chart below.



Another way to determine competitive advantage within the manufacturing sector is to look at shift share data. The number of jobs in the manufacturing sector is declining nationally and EGR 8 has experienced an overall decline in manufacturing jobs as well. According to IBRC data, EGR 8 lost 2,542 manufacturing jobs from the 1st quarter of 2001 to the 1st quarter of 2004. This loss was well beyond what could be explained by the changing national economy. Looking at national growth component of shift share data for EGR 8, one would have expected a loss of only 328 jobs. The industry mix component of the shift share data (-2,955) also indicates that manufacturing jobs grew significantly less quickly than the national growth rate for all industries. The regional shift component, however, shows a gain of 711 jobs that can be attributed directly to local factors within EGR 8.

Although the manufacturing industry as a whole has been experiencing a decline in jobs both nationally and regionally, there are some sectors within manufacturing in our region for which the number of projected openings from 2002 – 2012 is expected to be significant. Much of the region's competitive advantage in manufacturing is due primarily to a few specific sectors of the manufacturing industry.

If we look at 3-digit NAICS codes, Miscellaneous Manufacturing (339), Food Manufacturing (311), Plastics and Rubber Manufacturing (326), Nonmetallic Mineral Product Manufacturing (327) and Fabricated Metal Product Manufacturing (332) account for many of the jobs in our region. These industries also contribute significantly to the competitive advantage EGR 8 has within the manufacturing sector. The largest sector (3,338 jobs) is Miscellaneous Manufacturing, which includes medical equipment and supplies manufacturing. This sector has more workers than any other type of manufacturing. Companies included in this sector include Cook Inc., Cook Urological, Boston Scientific, and Baxter.



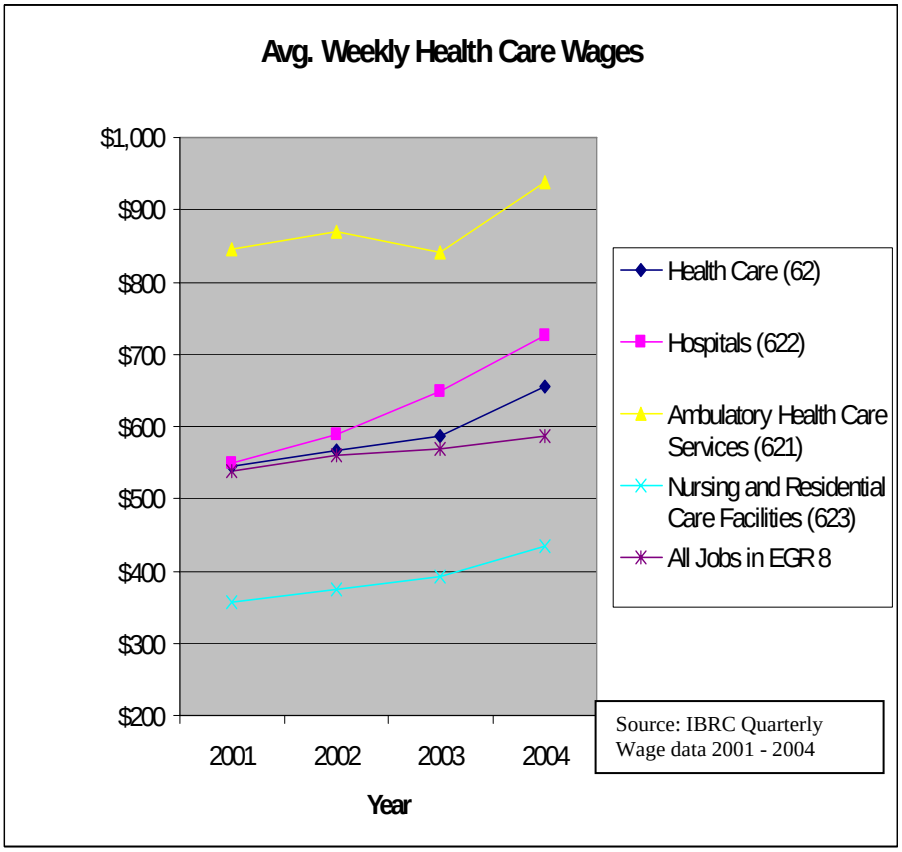
Source: IBRC data, 4th quarter 2001 and 4th quarter 2004

As illustrated by the chart above, location quotients in these manufacturing sectors that were already high have increased significantly from the 4th quarter of 2001 to the 4th quarter of 2004. Obviously these industries are quite important to the economy of the region and to lose them would cause considerable hardship. As such, ensuring that there is an ample supply of skilled workers to help the manufacturing sector thrive and grow is a priority of the SSI Consortium in EGR 8.

Health Care:

The health care industry also provided a sizable number (13,331) of jobs in the 4th quarter of 2004, accounting for 11.7% of all jobs in the region. Health care has also shown the most significant job growth, providing 871 more jobs in the 4th quarter of 2004 than in the 4th quarter of 2001. The average weekly wage ($655) of health care jobs in EGR 8 is below the national average weekly health care wage ($788), but this is still more than the average weekly wage of $587 for all jobs within our region. In 2004 health care jobs resulted in $410,551,859 in wages for workers in EGR 8.

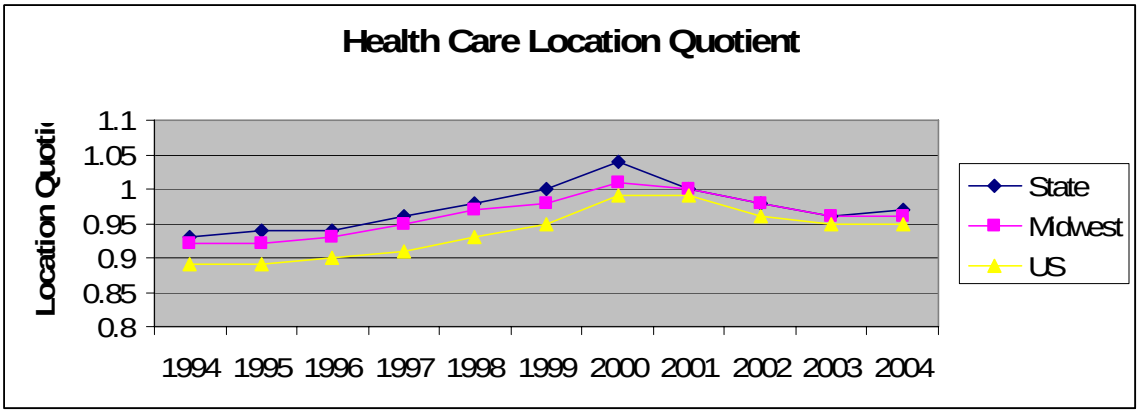
Most jobs within the Health Care sector fall within the 3 digit NAICS codes of Ambulatory Health Care (621), Hospitals (622), and Nursing and Residential Care Facilities (623).
It is encouraging to note that most wages in the health care industry have been above average for the region for the past several years and they have grown steadily since 2001. The one exception to this trend is in Nursing and Residential Care Facilities where wages have consistently been below the regional average for all jobs and wage growth in this sector has not been significant.



The Hospital sub-sector has shown the most significant growth in the number of jobs in EGR 8. Between 2001 and 2004 there were an additional 283 hospital jobs as compared to increases of 160 jobs in ambulatory health care and 103 jobs in nursing and residential care facilities. This is good news for workers in the region since hospital jobs also experienced the most wage growth.

As noted in the chart to the right, jobs in the Hospitals sub-sector have experienced the most significant wage growth within the health care industry in EGR 8. There are 6 hopsitals in the region: Bloomington Hospital, Dunn Memorial Hospital, Bedford Regional Medical Center, Daviess County Hospital, Greene County Hospital, and Bloomington Hospital of Orange County.

When compared to the state, Midwest and U.S. the health care industry in EGR 8 also had a high location quotient that has experienced only slight fluctuations in the past 10 years.



According to data available from the IBRC during that same period, however, jobs in the health care sector in EGR 8 have grown from 10,741 jobs in 1994 to 13,192 jobs in 2004.

For the past several years life sciences jobs have been a growing focus of economic development efforts in EGR 8. In 2003 the Bloomington Economic Development Corporation (BEDC) created the Bloomington Life Sciences Partnership (BLSP) to create opportunities for life sciences business formation, growth and expansion in the Bloomington area. This initiative involves both the medical manufacturing sector and health care sectors and reflects strong efforts within the region to capitalize on the competitive advantage demonstrated in these two industry sectors.

Professional, Scientific and Technical Services:

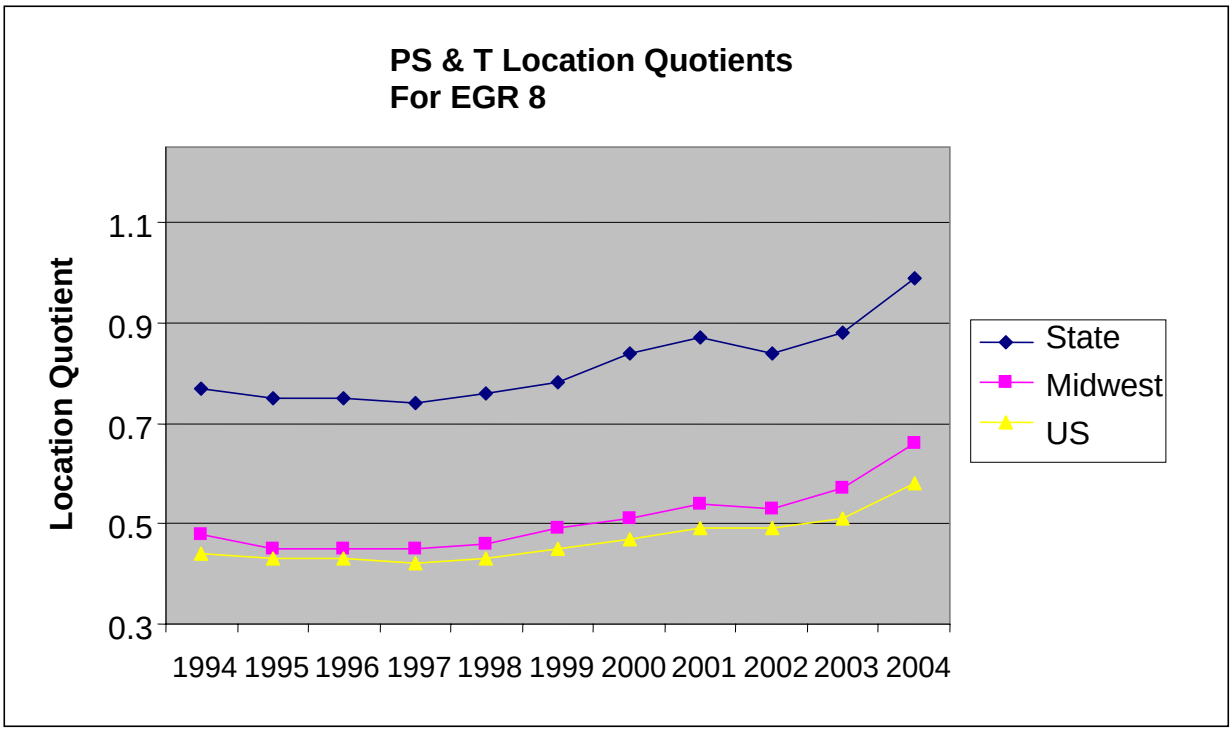
Although the Professional, Scientific and Technical Services industry does not employ nearly as many workers as manufacturing or health care, it is still quite significant in EGR 8. Many of the jobs in this sector are located at the Naval Surface Warfare Center (NSWC) at Crane or at companies like SAIC and EG&G that are defense contractors associated with Crane.

According to a study completed by Strategic Development Group (SDG) in 2003 on behalf of the Southern Indiana Business Alliance (SIBA), Crane has an estimated economic impact of about $1.5 billion. The eight counties surrounding Crane share an annual economic benefit of approximately $844.7 million. Crane is the 12th largest single-site employer in Indiana and the second largest in Southwest Indiana. The SDG report also provided insight into the significance of Crane to those communities that are located close by. According to SDG, Crane wages comprise 17.5% of all wages paid in Bedford, 46% of wages in Bloomfield and an astounding 67% of all wages paid to Loogootee residents.

The West Gate of Crane also has tremendous economic development potential. Due to a partnership formed by Daviess, Martin and Greene Counties, development of the West Gate @ Crane Technology Park is currently underway. Local officials hope to create a new redevelopment area surrounding Crane which would involve Daviess, Greene, Lawrence, Martin, Monroe and Orange counties, all of which are part of EGR 8. West Gate @ Crane is expected to eventually comprise about 1,000 acres and serve the military readiness and development needs of NSWC Crane.

Largely due to the influence of Crane, the Professional, Scientific and Technical Services industry sector has shown more growth (20.97%) than any other between the 4th quarter of 2001 and the 4th quarter of 2004. During the same period jobs in this sector experienced an average wage increase of $125 per week. This is particularly good news for the region because the high skills, high paying jobs within this sector have been increasing significantly in both numbers and average weekly pay.

EGR 8 has also experienced an increase in competitive advantage within the Professional, Scientific, and Technical Services sector.

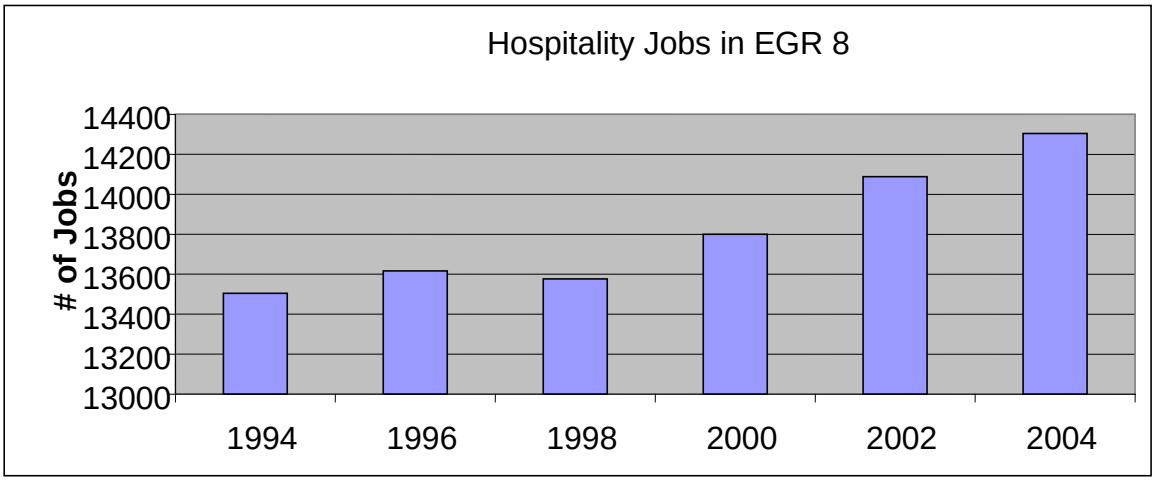


Source: IBRC Location Quotient data

As illustrated by the chart above, EGR 8 has faired well in recent years, particularly when compared to Indiana and the Midwest. This industry sector also showed an increase of 569 jobs due to regional shift from the 1st quarter of 2004 to the 1st quarter of 2004. This further supports the notion that Professional, Scientific, and Technical Services jobs in our region are well positioned to capitalize on this competitive advantage in the future.

Hospitality:

The hospitality industry is an emerging industry within EGR 8 and as such the typical data that is available for the other key industries does not reflect the future needs for hospitality workers within the region. We can get some idea of the increasing importance of hospitality and tourism by looking at the combined statistics for the Food Service and Accommodation and the Arts, Entertainment, and Recreation Sectors within the region.



Source: IBRC annual job data. The chart reflects the combination of the Food Service and Accommodation sector and the Arts, Entertainment and Recreation sector.

Hospitality and tourism has become increasingly important to every county of EGR 8. *Brown County* has relied on visitors from outside the area to help fuel the county's economy for many years. With Brown County State Park, over 100 artists, numerous specialty shops and restaurants, Little Nashville Opry, Bill Monroe Music Park and Campground and many other area activities, Brown County has a lot to offer visitors. According to a Certec, Inc. study from 2001, tourism was Brown County's primary industry generating about $20 million in state and local tax revenue and providing a direct economic impact of $110 million in 2001.

Monroe County also benefits economically from tourism due to sporting events, Indiana University cultural offerings, Lake Monroe and other attractions. According to the Monroe County Convention and Visitors Bureau website, the hospitality industry is the third largest industry in Monroe County bringing over 3 million visitors to the area each year. Tourism accounts for nearly 4,000 jobs in the Bloomington area and $225 million dollars each year in economic impact to the community.

Daviess County has also experienced a large growth in tourism in recent years. According to a press release issued by the Daviess County Visitor's Bureau (DCVB) in June of 2003, spending by visitors to Daviess County increased almost four-fold from $8.6 million in 1993 to 33.5 million in 2002. The DCVB attributes most of the growth to visitors seeking cultural experiences in the Amish community and great recreational opportunities including camping and fishing.

Lawrence County also has a variety of activities designed to attract tourism to the county. Attractions in Lawrence County include Spring Mill State Park, Gus Grissom Memorial, Hoosier National Forest, Williams Dam State Recreation Area, Bluespring Caverns and various limestone tours. *Owen County* has McCormick's Creek State Park, a variety of festivals that draw large crowds, Cataract Falls State Recreation Area, and Lieber State Recreation Area on Cagles Mill Lake.

Martin County offers a variety of recreational activities that draw numerous visitors to the area for weekend trips. These activities include Hindostan Falls, West Boggs Lake, Jug Rock and golf in addition to a variety of local restaurants. Greene County has more than 150 public lakes offering some of the most varied fishing in the Midwest and hunting, camping and fishing are readily available to visitors to this area. Linton also is home to one of the largest Independence Day celebrations in the state with a parade and a two-week festival. Linton also hosts the Phil Harris Celebrity Golf Tournament which has attracted a number of celebrities to Linton over the years.

While all the counties in EGR 8 benefit from tourism, the most immediate focus on the hospitality industry in the region will be taking place in *Orange County* over the next few years. Due to the recent approval of a gaming license for French Lick, a $250 million dollar resort and casino project is currently underway. With the construction of an 80,000 square foot casino scheduled to open in December 2006 and renovation of the French Lick Springs and West Baden Springs Resorts, the Orange County area has a goal to become the Midwest's premier resort destination. It is anticipated that this project will not only greatly benefit the tourism industry and economy of Orange County, but will benefit the hospitality industry throughout EGR 8 by bringing more visitors to South Central Indiana.

When added together, the Food Service and Accommodation sector and Arts, Entertainment and Recreation sector accounted for over 14,000 jobs in 2004. The Orange County casino and resort project is expected to add over 1,100 additional jobs in the hospitality industry. Although some of the jobs in the hospitality and tourism industry pay relatively low wages, there are opportunities for management and supervisory workers, sales directors, meeting planners, hotel managers, and other upper level jobs that pay quite well. More specific information about wages in the hospitality is contained later in this report.

The hospitality and tourism industry is also important to the region because much of the revenue generated by this industry comes from outside EGR 8. Since it is desirable to have a number of basic industries to help the region become more prosperous, this growth in the hospitality and tourism industry sector is welcome and should be encouraged and stimulated whenever possible. Hospitality jobs are also valuable to the local economy since these jobs cannot be outsourced to companies outside the area or relocated to other countries due to global competition.

IV. Critical Occupations within the Key Industries

Once agreement had been reached among the Executive Team and Consortium members regarding the key industry sectors within the region, work began to identify specific critical occupations within the manufacturing, health care, and professional, scientific and technical services industries that are expected to experience a shortage of workers. An important source of information for this phase of the project is the Occupations and Industry Projections report available through the SSI Toolkit.

Many occupations within the targeted sectors are anticipated to have openings. Therefore, the Executive Team and Consortium took several other factors into consideration when determining which occupations experiencing shortages were critical and were to be included in this report and studied further at the root cause and solutions phase of the SSI project.

In addition to the projected number of job openings expected between 2002 and 2012, the team in EGR 8 also wanted to be sure that any occupations identified for further study would be appropriate for inclusion in the SSI Root Cause and Solutions Reports. To that end, the group began by identifying those occupations with more than 100 projected openings from 2002 – 2012. Since our strategy was to identify those occupations where the SSI project could produce the most positive results for both the regional economy and the individual workers in our area, a priority point scale was then established which awarded points based on the following criteria:

1) The current number of workers employed in the occupation in EGR 8. This was important because our goal was to identify occupations that employ large numbers of workers. The loss of these occupations would have a measurable negative impact on the local economy and thus any solutions identified should have a significant impact on a large number of workers.

2) The number of projected openings for the period 2002 – 2012. This was important because the focus of the project is on industries that are projected to need significant numbers of workers and are likely to experience a shortage.

3) The average entry level wage for the occupation. Because we want to support DWD's goal of increasing personal income for the workers in our region, our goal was to work on solutions for jobs that pay good wages.

4) The ONet job zone number for each occupation. The ONet job zone number is a rating system used to indicate the amount of experience and vocational preparation needed for a particular job. To ensure that the selected occupations are appropriate to be addressed by the local WorkOne system and do not require advanced degrees or many years of education, the group reviewed the education and skill level requirements for each occupation. Also, since the SSI project is focused on shortages between now and 2012, it would not be reasonable to focus on occupations that need more than 4 years education. We are hopeful that we can put in place a system that begins to quickly address occupational and skills shortages.

Steps were also taken to regionally validate the selections of these occupations. Data supporting the reasons these occupations are targeted for further study was reviewed and discussed not only by the SSI Executive Team but also by the full consortium. As a means of further supporting these selections, several WorkOne staff from the Bloomington, Bedford, and Linton offices held interviews and discussions with several local employers who represent industries that employ workers in these occupations. Local economic development representatives from the counties of the region helped identify companies that would be appropriate to participate in these interviews.

There were several benefits of utilizing this approach. First, since the local WorkOne offices seek to be known as the best source of information about the workforce and the needs of local employers, this provided an excellent opportunity for the staff to make contact with employers who are key players in the economic success of the region. Second, this supports DWD's goal of premier customer service to employers. Local staff need to be very aware of the specific needs and concerns of local employers to ensure that the WorkOne offices provide a high level of service and identify the best possible workers to fill job openings for these employers. Third, the SSI initiative is intended not only to identify and address skills shortages, but also to increase the capacity of the local WorkOne system to analyze labor market information to better target the limited workforce development resources available to the region. As such, it was important to involve local office staff in the project.

Representatives from the following employers agreed to review the targeted occupations described in this report: Visteon, Lehigh Cement Company, GM Powertrain, Cook, Inc., Boston Scientific, Paoli, Inc., Bedford Regional Medical Center, Owen Valley Health, Bloomington Hospital (which also operates Bloomington Hospital of Orange County), SAIC, PTS Corporation, Raydar, EG&G, Midwestern Engineering, Technology Services Corporation, TriStar Engineering, TriCo Surveying and Mapping, CACI, NSWC Crane, and French Lick Springs Resort and Casino. These employers were able to provide first hand knowledge and expertise about the importance of these positions and describe their ability to find workers who have the skills to fill these positions. They also provided valuable input on the skills sets that are needed by their workers and the most common deficiencies that exist in applicants and current employees of their companies.

Because of the nature of this information, the specific responses given by each employer will remain confidential, but the valuable information gained from the discussions with these employers will be referenced throughout the remainder of this report.

In addition to the data cited throughout the following pages, U.S. Census migration data for the region was reviewed. After studying the net migration numbers for the past several years, it was determined that no reliable migration projections could be made. Recent net migration has been insignificant with a net in-migration of only 78 people from July 2003 to July 2004. Indiana University students account significantly for the wide fluctuations in migration and since no reliable projections were available about the numbers of IU students who will remain in the area, the decision was made not to include migration projections in the report.

The following pages identify the key occupations that were initially identified as key to the region and potentially facing worker shortages. As the root cause and solutions phases of the SSI project are conducted, it is possible that this list of occupations will be pared down to allow for a more intensive focus on only a few occupations. As such, some of the following occupations may not be addressed in the root cause and/or solutions reports.

Manufacturing

When reviewing projections for the positions within the manufacturing sector, many jobs are expected to experience only a slight demand for workers and therefore are unlikely to experience a shortage. There are several jobs, however, that are expected to experience a need for large numbers of workers between now and 2012.

The entire manufacturing sector is expected to have about 3,600 projected openings between 2002 and 2012. Of these projected openings, 3,250 are due to replacement and only 350 are due to growth. Using the evaluation criteria described earlier in this section, the two occupations determined as critical and likely facing a shortage of workers through the year 2012 are:

1) First Line Supervisors/Managers of Production and Operating Workers
2) Team Assemblers

1. First Line Supervisors/Mgrs of Production and Operating Workers (SOC 51-1011)

First Line Supervisors/Managers of Production and Operating Workers are critical to local companies in the manufacturing sector. Nearly every manufacturing facility in the area needs individuals with not only the technical skills necessary to perform the manufacturing functions needed, but also with the supervisory skills to effectively manage employees to meet production goals.

Jobs and Wages

According to the Occupational and Industry Estimates report there were 871 of these workers in EGR 8 in 2003. During the period 2002 – 2012, the Occupational and Industry Projections report indicates there will be 210 openings, or an average of 21 openings per year, for First Line Supervisors/Managers of Production and Operating Workers. According to DWD's Occupations and Starting Wages Report for the counties of EGR 8, during the period October 1, 2004 to September 30, 2005 there were 49 openings for these workers recorded by the CS3 system. In 2003 the entry level wages for these workers averaged $13.87 per hour, and the median wage was $20.11 per hour.

Training and Skills

According to information on the www.learnmoreindiana.org website, most employers seek individuals that have an Associate's Degree or at least some vocational training to fill the position of Production Managers/Supervisor. Although some of these workers may be found among the pool of production workers already employed within area companies, those workers may lack the necessary "people skills" to effectively manage other workers. According to ONet data for this occupation, the necessary skills include the following: Coordination, Critical Thinking, Reading Comprehension, Speaking, Time Management, Mathematics, Judgment and Decision Making, Management of Personnel Resources, Writing, and Management of Material Resources. Available data about the needs of local employers indicates that both basic reading and math skills as well as "soft skills" such as critical thinking, time management, decision

making, etc. are a scarce resource among not only new applicants to their companies but among their current workforce as well. According to the ERISS survey results, employers in EGR 8 identified critical thinking; reading skills; positive attitude; mathematics skills; communication skills; and learning, understanding, and applying information as deficiencies among recent applicants and their current workers. Local employers who were interviewed supported these findings. More information about these worker deficiencies are contained later in this report.

With an ONet job zone difficulty level of 3, this occupation requires a medium level of preparation with 1 – 4 years vocational preparation. Previous work-related skills, knowledge, or experience are typically required. Employees in this occupation usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. Occupations at this level usually involve using communication and organizational skills to coordinate, supervise, manage, or train others to accomplish goals.

Most of these positions tend to be located in large production facilities such as General Electric, Cook, Inc., Boston Scientific, GM Powertrain, and Visteon, although smaller manufacturers also need supervisory and management staff.

Although there is usually no formal education and credential requirements for these positions, employers prefer workers who have some supervisory skills and abilities. IU, Ivy Tech and Vincennes University all offer programs designed to improve supervisory and management capabilities of the students in these programs.

Both VU and Ivy Tech offer Associate's degrees in Business Management as well one year certificate programs. VU offers a certificate in Organizational Leadership and Management and Ivy Tech offers a Career Development Certificate in Managerial Skills. Ivy Tech's Workforce and Economic Development department also offers a short-term, non-credit Management and Supervisory Institute that is designed to provide supervisory skills training to high school graduates, college graduates, and new or experienced supervisors who need more formal training or professional development. While these training programs are valuable in providing instruction in supervisory and management skills, they are not concentrated specifically on production occupations. The IU Kelley School of Business offers a Bachelor's degree program in Production/Operations Management. In order to be admitted to this program, students must have completed 26 credits in general education courses, including certain specified business courses, with at least a 3.0 GPA.

Career Path

With additional post secondary training or apprenticeships these workers may progress to become CNC machine operators, or quality control inspectors. With more advanced education, these workers may become Health and Safety Managers, Manufacturing Process/Project Managers, Product Designers, or Manufacturing Engineers. Workers with a background in math, science, and computers may advance to become programmers or operators of more highly automated production equipment.

Availability of Skilled Workers

According to many of the local employers who provided input for this report, supervisors and managers of production workers are frequently hired from within the existing workforce. None of these companies indicated significant turnover within the production supervisory and management staff. Several employers indicated that they experience little difficulty in finding applicants for these positions and they projected a need for a very small number of these workers each year. Results of the ERISS survey further supported the notion that turnover is not an area of concern in this industry in EGR 8.

Several employers, however, did indicate difficulty finding individuals with the skills necessary to fill these positions and one large company indicated that it often takes up to 6 months to fill vacant supervisory positions. The occupational and skills shortage estimates worksheet does indicate a middle level projected shortage of 18 workers in this occupation. While this is only a slight shortage, in talking to local employers, it appears that a key issue is the lack of people with supervisory and management skills. Employers often desire to promote individuals from within the company who have the production knowledge and skills needed, but these workers often do not have supervisory experience, training or skills.

Production supervisors frequently must also have knowledge and skills related to the manufacturing processes utilized by the employees that they supervise. As such only the anticipated Indiana University Production/Operations Management program completers projected to work in EGR 8 were included in the supply side worksheet for this occupation.

The IU program produces about 166 graduates of this program each year. While many of these students leave the area, it is estimated that about 25% may be likely to stay and work at jobs within EGR 8. Of this 25% it is estimated that about half of these workers may accept available front line supervisor jobs in manufacturing facilities within the region.

This occupation will be explored further as a part of the root cause phase of the project to determine more specifics about the projected shortages. This might be an example of an occupation that could benefit from customized training focused upon improving the supervisory capabilities of production workers.

Numeric Estimates of Projected Shortages

The Supervisors of Production Workers occupation is projected to have a 2 year (through 2007) shortage of 18 workers and a projected 7 year (through 2012) shortage of 18 workers.

2. Team Assemblers (SOC 51-2092)

Jobs and Wages

The Occupational and Industry Estimates report from 2003, indicates that EGR 8 had 3,253 workers employed as team assemblers at an average entry level wage of $9.03 per hour and a median wage of $13.12 per hour. Occupational and Industry Estimates from 2003 show 920 projected openings for Team Assemblers are anticipated during the period 2002 -2012. According to DWD's Occupations and Starting Wages Report for the counties of EGR 8, during

the period October 1, 2004 to September 30, 2005 there were 1,118 openings for assemblers recorded by the CS3 system.

Because Miscellaneous Manufacturing which includes manufacturing of medical devices and implements employs over 3,300 workers primarily in Monroe and Owen Counties, many of these jobs are located at companies such as Cook, Inc., Boston Scientific, and Cook Urological.

Training and Skills

Team Assemblers usually need only to have formal education consisting of a high school diploma or GED and a few months work experience to qualify for these jobs. With the advances in technology and manufacturing processes in recent years, however, employers are increasingly in need of workers with more skills than ever before. According to ONet data for assembly positions, skills that are frequently needed include: Product Inspection, Equipment Selection, Operation and Control, and Reading Comprehension.

In addition to the ONet skills, numerous employers in EGR 8 have expressed difficulty finding workers with job readiness and retention skills such as good attendance, punctuality, and positive work attitude as well as basic reading and math skills and the ability to work as part of a team. Several local manufacturing companies have indicated a high turnover rate within the first 90 days of employment due to a lack of job retention skills. Employee turnover is very costly to these companies.

In 2003 EGR 8 had 3,253 workers employed as team assemblers at an average entry level wage of $9.03 per hour. More experienced workers earned an average wage of $16.25 per hour. There are projected to be 920 openings for Team Assemblers during the period 2002 -2012, an average of 92 workers each year.

With an ONet job zone level of 2, employees in this occupation need some preparation, usually 6 months to 2 years. Some previous work-related skills, knowledge or experience is helpful but not always necessary.

There are no local training programs designed to prepare workers for jobs as assemblers.

Career Path

According to the Indiana Department of Education, individuals who work as team assemblers but wish to progress up the career ladder are well positioned to pursue positions as First Line Supervisors. With additional post secondary training or apprenticeships these workers may progress to become CNC machine operators, or quality control inspectors. With more advanced education, these workers may become Health and Safety Managers, Manufacturing Process/Project Managers, Product Designers, or Manufacturing Engineers.

The Bureau of Labor Statistics Occupational Outlook Handbook indicates that as assemblers gain experience, they may progress to jobs that require greater skill and be given more responsibility. Experienced assemblers may become product repairers if they have learned the many assembly operations and understand the construction of a product. Assemblers can also advance to quality control jobs or be promoted to supervisor. Experienced assemblers may also

become members of research and development teams, working with engineers and other project designers to design, develop, and build prototypes, and test new product models. In some companies, assemblers can become trainees for one of the skilled trades, such as machinist. Those with a background in math, science, and computers may advance to become programmers or operators of more highly automated production equipment.

Availability of Skilled Workers

The number of applicants for assembly jobs in EGR 8 has typically been more than sufficient and this trend continues today. In looking at the Applicant Pool from the INEWS website for the counties of EGR 8 during the week of October 24, 2005, assemblers was the number one job title for which people applied in every county of the region. A total of 3,365 people in the region indicated they were seeking assembly jobs during that particular week.

There is a difference, however, between having a large number of applicants and having a sufficient number of people who possess the skills that are desired by area employers. Although team assembler jobs do not require advanced education or credentials, as manufacturing processes become more advanced and technology based, employers are increasingly in need of workers who possess the basic skills to perform the job successfully.

Employers in the region are reporting increased difficulty finding workers with the basic skills and job readiness and retention skills to be productive employees. According to a 2004 survey completed by the IBRC on behalf of the Bloomington Economic Development Corporation, 50% of the employers who responded about the quality of local hourly, unskilled workers rated these workers as either fair or poor.

The worker shortage estimates reported on the skills shortage worksheets in Appendix B indicate a need for more workers who have the skills to be productive assemblers for local companies, particularly in the Miscellaneous Manufacturing, Transportation Equipment and Furniture production sub-sectors of the Manufacturing sector.

Numeric Estimates of Projected Shortages

The Team Assembler occupation is projected to have a 2 year (through 2007) shortage of 234 workers and a projected 7 year (through 2012) shortage of 694 workers.

Health Care

Numerous jobs within the health care industry are expected to have significant openings in the upcoming years. Using the priority point system described earlier in this section, the SSI Executive Team and Consortium determined that the critical occupations facing shortages within the health care industry are:

1) Registered Nurses,
2) Licensed Practical Nurses,
3) Nurses Aides, and
4) Respiratory Therapists

1. Registered Nurses (SOC 29-1111)

Registered Nurses are very critical to the health care industry in EGR 8. Hospitals, Clinics, Doctor's Offices, Residential and Nursing Care facilities and other health care related establishments rely on RN's to provide patient care. For several years the area has been experiencing a shortage in these workers and this shortage is expected to continue in the future.

Jobs and Wages

The Occupational and Industry Estimates report from 2003 indicates that there were 1,666 individuals employed as Registered Nurses in EGR 8. During the period 2002–2012, a projected 950 workers will be needed to fill openings in this occupation according to information contained in the Occupational and Industry Projections report from 2003. One of the region's higher paying jobs, Registered Nurses average $17.38 per hour as an entry level wage and a median wage of $21.35 per hour. According to DWD's Occupations and Starting Wages Report for the counties of EGR 8, during the period October 1, 2004 to September 30, 2005 there were 56 openings for Registered Nurses recorded by the CS3 system.

Hospitals employ more RNs than any other sector of the health care industry. The largest health care provider in the region is Bloomington Hospital which also operates a nursing and residential care facility in Monroe County and the hospital in Orange County. In addition, the region also has hospitals in Lawrence, Daviess and Greene Counties.

Training and Skills

According to information available on the www.learnmoreindiana.org website, most nursing jobs require an Associate's Degree, while some require a Bachelor's Degree. All Registered Nurses must pass state licensing exams. To meet the needs and expectations of employers, Registered Nurses must have a variety of skills in addition to the technical skills required to pass the state licensing exam. According to ONet data Registered Nurses also need the following skills: Active Listening, Reading Comprehension, Critical Thinking, Instructing, Speaking, Time Management, Service Orientation, Monitoring, Social Perceptiveness, and Writing.

With an ONet job zone difficulty level of 3, this occupation requires a medium level of preparation with 1 – 4 years vocational preparation. Previous work-related skills, knowledge, or

experience are typically required. Employees in this occupation usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. Occupations at this level usually involve using communication and organizational skills to coordinate, supervise, manage, or train others to accomplish goals.

Vincennes University, Ivy Tech Community College and Indiana University all have programs designed to prepare students for careers as Registered Nurses. While the Ivy Tech and VU programs result in Associate's degrees, the IU program is for students that wish to pursue Bachelor of Science degrees in Nursing. Each school has its own unique requirements for admission to these training programs, but all require high school graduation, passing an entrance exam, and grades no lower than a "C" in general education courses, particularly chemistry classes. It is recommended that these students take advanced math courses such as algebra prior to entering the Nursing program.

The IU program is highly competitive and requires approximately 4 years to complete. Due in large part to the rigorous admissions process, the school reports that it is very unusual for a student not to complete the program. The VU and Ivy Tech programs require approximately 2 years to complete. These schools cite failure to maintain acceptable GPA, financial problems, and personal problems as the most likely reasons students do not complete the program.

IU, Ivy Tech and VU supplied numerical estimates for the number of students projected to complete these programs. Although these schools do not track exactly how many graduates of the program work at jobs located within EGR 8, they provided estimates for these projections as well. To arrive at the production numbers included in the numerical estimate worksheets in Appendix B, the number of projected completers was multiplied by the percent likely to find a job in EGR 8.

Career Path

According to the BLS Occupational Outlook Handbook, experience and good performance can lead to promotion into more responsible positions. In management, nurses can advance to assistant head nurse or head nurse and, from there, to assistant director, director, and vice president.

Within patient care, nurses can move into a nursing specialty such as clinical nurse specialist, nurse practitioner, certified nurse midwife, or certified registered nurse anesthetist. These positions require about 2 years of graduate education leading to a master's degree.

Some nurses move into the business side of health care. Their nursing expertise and experience on a healthcare team equip them with the ability to manage ambulatory, acute, home health, and chronic care services. Employers—including hospitals, insurance companies, pharmaceutical manufacturers, and managed care organizations, among others—need RNs for health planning and development, marketing, consulting, policy development, and quality assurance. Other nurses work as college and university faculty or conduct research.

Availability of Skilled Workers

A nursing shortage is predicted across the state and the nation in the upcoming years and EGR 8 is no different. Numerous studies have been conducted throughout the country to determine the severity of the nursing shortages and some of the potential causes of the shortage. Frequently the research indicates that the increasing numbers of older individuals will lead to an increased need for nurses to care for the elderly. Also cited in a number of studies is the stress and job dissatisfaction that nurses increasingly experience as job demands continue to grow. As more and more patients must be cared for by an insufficient number of nursing staff, nurses feel more physical and emotional exhaustion resulting from overtime hours and increased duties. The increasing age of the current nursing workforce is also likely a contributing factor to this shortage. Of the projected 950 openings indicated by the Occupation and Industry Projections report, approximately 600 are due to growth and 350 are due to replacement needs.

Completion of the numeric estimates worksheets contained in Appendix B confirmed that the region is in need of more Registered Nurses in the upcoming years. Based largely upon projections provided by local health care providers, our middle projection for estimated annual openings is 150, higher than the DWD estimate of 95 per year. Interviews with local employers confirm that additional nurses are needed. The health care employers who were interviewed by WorkOne staff indicate a difficulty in finding qualified RNs. Further research into the possible causes for the shortage of RNs in EGR 8 will be conducted during the root causes phase of the project.

Numeric Estimates of Projected Shortages

The Registered Nurse occupation is projected to have a 2 year (through 2007) shortage of 191 workers and a projected 7 year (through 2012) shortage of 351 workers.

2. Licensed Practical Nurses (SOC 29-2061)

Jobs and Wages

Licensed Practical Nurses are also critical to the health care industry in the region. Occupational and Industry Estimates for 2003 indicate there were 835 people employed as LPNs in EGR 8. These jobs pay well above the average wage in our area with an entry level average wage of $13.11 per hour and a median wage of $15.59 per hour. Occupational and Industry Projections from 2003 indicate that there will be 310 openings for LPNs during the period 2002 -2012. According to DWD's Occupations and Starting Wages Report for the counties of EGR 8, during the period October 1, 2004 to September 30, 2005 there were 34 openings for Licensed Practical Nurses recorded by the CS3 system.

These jobs are located throughout the counties of the region. Many of the LPN jobs exist at nursing and residential care facilities, physicians offices, clinics, and hospitals. While Monroe and Lawrence Counties have the most opportunities in this career field, every county of the region has health care facilities in need of LPNs.

Training and Skills

Most LPNs are required to have a high school diploma or GED and completion of a one year training program is usually required. LPNs must also pass a state licensing exam.

According to ONet data, in addition to the technical skills needed to pass training and the state licensing exam, the following skills are needed by LPNs: active listening, reading comprehension, time management, writing, critical thinking, monitoring, judgment and decision making, service orientation, speaking and active listening.

With an ONet job zone difficulty level of 3, this occupation requires a medium level of preparation with 1 – 4 years vocational preparation. Previous work-related skills, knowledge, or experience are typically required. Employees in this occupation usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. Occupations at this level usually involve using communication and organizational skills to coordinate, supervise, manage, or train others to accomplish goals.

Both Vincennes University and Ivy Tech Community College operate programs designed to train students to work as Licensed Practical Nurses. Both schools require a high school diploma or GED and applicants must pass an entrance exam prior to admission into the training program. Individuals must maintain grades no lower than a "C" and solid math skills are very important for students entering this profession.

Both schools indicate that the most likely reasons students fail to complete the program are the difficulty of the coursework, failure to meet the required grades, personal problems and financial problems.

Both Ivy Tech and VU supplied numerical estimates for the number of students projected to complete these programs. Although these schools do not track exactly how many graduates of the program work at jobs located within EGR 8, they provided estimates for these projections as well. To arrive at the production numbers included in the numerical estimate worksheets in Appendix B, the number of projected completers was multiplied by the percent likely to find a job in EGR 8.

Career Path

The most readily available career path opportunity for Licensed Practical Nurses is to pursue additional training to become a Registered Nurse. In many cases, only one year of additional coursework is needed for an LPN to improve their pay by several dollars per hour. Since a significant shortage of Registered Nurses is projected in the upcoming year, current LPNs have a realistic opportunity to grow their own personal income by taking the steps necessary to prepare for a career as a RN. Since current LPNs might be a possible solution to the shortage of RN's, further exploration into the feasibility of training more LPNs to become RNs will be conducted during the root causes and solutions phase of the SSI project.

Availability of Skilled Workers

Licensed Practical Nurses are also in short supply. Of the projected 310 openings for LPNs 120 are due to growth and 190 are due to replacement. Although the shortage of LPNs is not as severe as the shortage of RNs, as indicated in the estimated occupational shortage worksheet contained in Appendix B, the LPN occupation in the region is projected to experience a shortage of 148 workers between 2005 and 2012. More research will be conducted as a part of the root causes phase of this project to determine the specific causes of these shortages. High turnover rates within this occupation are likely to play a part in the need for additional LPNs.

Numeric Estimates of Projected Shortages

The Licensed Practical Nurse occupation is projected to have a 2 year (through 2007) shortage of 18 workers and a projected 7 year (through 2012) shortage of 148 workers.

3. Nurses Aides, Orderlies and Attendants (SOC 31-1012)

Jobs and Wages

The sub-sector of Nurses Aides, Orderlies and Attendants is one of the larger sub-sectors of employment within the health care industry. In the 2003 Occupational and Industry Estimates report, the data showed that 1,678 workers were employed in this occupation. Although the average entry level wage of $7.64 per hour is below average for the region, the median wage of $9.42 per hour is a suitable wage for many workers in the region. The Occupational and Industry Projections report for 2003 shows that, for the period 2002-2012, 570 openings for these workers are projected. According to DWD's Occupations and Starting Wages Report for the counties of EGR 8, during the period October 1, 2004 to September 30, 2005 there were 94 openings for Nurses Aides, Orderlies and Attendants recorded by the CS3 system.

As with the LPN jobs, these Nurses Aide jobs are located throughout the counties of the region. Many of these jobs exist at nursing and residential care facilities. While Monroe and Lawrence Counties have the most opportunities in this career field, every county of the region has health care facilities in need of Nurses Aides.

Training and Skills

Nurses Aides, Orderlies and Attendants usually are required only to have a high school diploma or GED and possibly some minimal vocational training. Certified Nurses Aides (CNAs) are required to pass a state licensing exam. In addition to some technical skills related to patient care, ONet data indicates that these workers also need the following skills: active listening, instructing, speaking, coordination, time management, service orientation, monitoring, social perceptiveness, critical thinking, and reading comprehension.

With an ONet job zone level of 2, employees in this occupation need some preparation, usually 6 months to 2 years. Some previous work-related skills, knowledge or experience is helpful but not always necessary.

Ivy Tech Community College offers a training program for individuals who are interested in pursuing a job as a Nurses Aide. In order to qualify for admission into this training program, students must have a high school diploma or GED and take a basic reading and math test required by the Indiana Department of Health. This seven-week course is entry level and has no prerequisite course requirements. The most common reasons given by the school for student failure of the program are lack of awareness of the time commitment involved or personal and financial reasons.

Ivy Tech supplied numerical estimates for the number of students projected to complete these programs. Although Ivy Tech does not track exactly how many graduates of the program work at jobs located within EGR 8, they provided an estimate for these projections as well. To arrive at the production numbers included in the numerical estimate worksheets in Appendix B, the number of projected completers was multiplied by the percent likely to find a job in EGR 8.

Career Path

Opportunities for advancement within these occupations are limited. To enter other health occupations, aides generally need additional formal training. Some employers and unions provide opportunities by simplifying the educational paths to advancement. Experience as an aide also can help individuals decide whether to pursue a career in the health care field.

Availability of Skilled Workers

As indicated in the occupational shortage worksheet contained in Appendix B, additional Nurses Aides are needed in the upcoming years. Of the projected 570 openings in this occupation, 340 are due to growth and 230 due to replacement. Both ERISS survey data for EGR 8 and local staff interviews with employers indicate high turnover rates, 29% and 34% respectively, within this occupation. For this reason, it was determined that vacancy rates could not be used as a reliable method upon which to base projected shortages. Local employers reported that these workers "job hop" within the industry quite frequently. This likely results in an inflated number of job openings that over represents the magnitude of the worker shortage when applied to current employment numbers. Based upon feedback from local employers who indicate that they have little difficulty finding workers in this occupation, the decision was made to use DWD projections when completing the numeric estimate worksheets contained in Appendix B.

The projected shortage of Nurses Aides, however, when combined with the shortages of RNs and LPNs, further contributes to the potential crisis being faced by the health care industry.

Numeric Estimates of Projected Shortages

The Nurses Aide occupation is projected to have a 2 year (through 2007) shortage of 59 workers and a projected 7 year (through 2012) shortage of 94 workers.

4. Respiratory Therapists (SOC 29-1126)

Jobs and Wages

According to the Occupations and Industry Estimates report available in the SSI Toolkit, in 2003 there were 158 Respiratory Therapist jobs in EGR 8. Based on information contained in the Occupations and Industry Projections report, it is anticipated that there will be 130 openings in this career field during the period 2002-2012. At an entry level wage of $15.56 per hour, based on 2003 data, Respiratory Therapist jobs offer wages well above average for the region. The median wage for these jobs is $20.83 per hour. Nearly all of the Respiratory Therapist jobs in the region are located at the six hospitals in Daviess, Lawrence, Greene, Orange and Monroe Counties.

Training and Skills

According to information available on the www.learnmoreindiana.org website, Respiratory Therapists are usually required to have at least a certificate and may need an Associate's degree of Bachelor's degree depending upon the needs of the employer. In addition to the technical skills required for the job, ONet data indicates that Respiratory Therapists also need to have the following skills: reading comprehension, critical thinking, monitoring, time management, speaking, operation monitoring, active learning and troubleshooting.

With an ONet job zone difficulty level of 3, this occupation requires a medium level of preparation with 1 – 4 years vocational preparation. Previous work-related skills, knowledge, or experience are typically required. Employees in this occupation usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. Occupations at this level usually involve using communication and organizational skills to coordinate, supervise, manage, or train others to accomplish goals.

There currently are no training programs within EGR 8 for individuals seeking to be a Respiratory Therapist. A program was operated by Vincennes University several years ago, and at least one major hospital in EGR 8 has cited the termination of VU's program as specifically contributing to the increased difficulty in finding these workers. Ivy Tech Community College in Bloomington has received approval from the Indiana Commission for Higher Education to begin offering a Respiratory Care training program and plans to start the program in the upcoming semesters as soon as sufficient faculty has been identified.

In order to be considered for acceptance into the impending program, students must complete Intermediate Algebra, English Composition, and Anatomy and Physiology I and II. These courses must be completed with a "C" or better and with a GPA of at least 2.75. Specific interview and admissions testing requirements have not yet been determined. Students accepted into the Respiratory Care program will complete 24 general education credits and 55 credits of professional coursework. The program will take in excess of two years to complete.

Career Path

Respiratory therapists advance in clinical practice by moving from general care to care of critical patients who have significant problems in other organ systems, such as the heart or kidneys.

Respiratory therapists, especially those with 4-year degrees, may also advance to supervisory or managerial positions in a respiratory therapy department. Respiratory therapists in home healthcare and equipment rental firms may become branch managers. Some respiratory therapists advance by moving into teaching positions.

Availability of Skilled Workers

The lack of local training programs has decreased the availability of workers skilled in this occupation in recent years. Of the 150 projected openings in this occupation, 80 are due to growth and 50 are due to replacement needs. As reported in the numeric projections worksheets contained in Appendix B, middle level projections indicate an anticipated shortage of 26 workers in this occupation before 2012. Most Respiratory Therapists are employed in hospitals. Although a shortage of 26 does not sound like a significant number, with only six hospitals in the region, this shortage could create difficulty for each hospital as they try to deliver respiratory care services to their patients.

Because neither the ERISS survey data for employers within our region nor local WorkOne Staff interviews with employers produced significant information about this occupation, the numeric estimates contained in the skills shortage worksheets in Appendix B were generated by relying primarily upon DWD projections.

Numeric Estimates of Projected Shortages

The Respiratory Therapist occupation is projected to have a 2 year (through 2007) shortage of 26 workers and a projected 7 year (through 2012) shortage of 26 workers.

Professional, Scientific and Technical Services

Although many of the jobs in the Professional, Scientific and Technical Services industry require many years of training and preparation to make good wages, there are some occupations that pay quite well and require two years or less of training. It is not a coincidence that many of the jobs where openings are expected to occur are with NSWC Crane or companies that serve as contractors to Crane. As previously mentioned in this report, Crane and its contractors are a crucial part of the region's economy. Not only is Crane extremely important to Martin County where it is located, it also is vital to most of the surrounding counties that comprise EGR8. Using the priority point system described earlier in this section, the SSI Executive Team and Consortium determined that the critical occupations within the Professional, Scientific, and Technical sector are:

1) Electrical and Electronics Engineering Technicians
2) Drafting, Engineering and Mapping Technicians, all other

1. Electrical and Electronics Engineering Technicians (SOC 17-3023)

Jobs and Wages

According to the Occupational and Industry Estimates report included in the SSI Toolkit, there were 749 Electrical and Electronics Engineering Technician jobs in our region in 2003. According to the Occupational and Industry Projections report also available in the Toolkit, occupational projections for 2002-2012 indicate that 230 openings for these workers are anticipated. According to DWD's Occupations and Starting Wages Report for the counties of EGR 8, during the period October 1, 2004 to September 30, 2005 there were 19 openings for Electrical and Electronics Engineering Technicians recorded by the CS3 system.

Jobs in the Professional, Scientific and Technical Services sector are typically high paying and Electrical and Electronics Engineering Technicians are no exception. These jobs pay well above average in the region. Data contained in the Occupational and Industry Estimates Report indicates 2003 entry level wages of $16.53 per hour and median wages of $26.27 per hour for these jobs.

The majority of these jobs are located within Greene, Daviess and Martin Counties because of the influence of NSWC Crane on the labor markets within those counties. A number of defense contractors such as SAIC and EG&G are located in close proximity to Crane and these companies employ large numbers of these workers.

Training and Skills

Based on information from the www.learnmoreindiana.org website, most Electrical and Electronics Engineering Technicians require an Associate's degree. In addition to the technical skills required for the job, ONet data indicates that the following skills are also needed: troubleshooting, repairing, equipment maintenance, equipment selection, time management,

reading comprehension, judgment and decision making, operation monitoring, active learning, and complex problem solving.

With an ONet job zone difficulty level of 3, this occupation requires a medium level of preparation with 1 – 4 years vocational preparation. Previous work-related skills, knowledge, or experience are typically required. Employees in this occupation usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. Occupations at this level usually involve using communication and organizational skills to coordinate, supervise, manage, or train others to accomplish goals.

Both Vincennes University and Ivy Tech Community College provide two year training programs to prepare individuals for Electrical and Electronics Engineering Technician jobs. In order to gain admission to these training programs, students must be high school graduates and take assessments administered by the schools. Both schools report that for students applying for these training programs, reading and math skills are among the top areas where remediation is needed to increase the likelihood of success in the program. The training institutions report that students fail to complete the program most frequently because of the rigor of the program, the inability to complete the program in the two year timeframe, financial problems, and a lack of preparation for college level work.

Both VU and Ivy Tech supplied numerical estimates for the number of students projected to complete these programs. Although they do not track exactly how many graduates of these programs work at jobs located within EGR 8, both schools provided estimates for these projections as well. To arrive at the production numbers included in the numerical estimate worksheets in Appendix B, the number of projected completers was multiplied by the percent likely to find a job in EGR 8.

Career Path

Engineering technicians usually begin by performing routine duties under the close supervision of an experienced technician, technologist, engineer, or scientist. As they gain experience, they are given more difficult assignments with only general supervision. Some engineering technicians eventually become supervisors. Those who want to increase their income even more can pursue additional training and become Electrical Engineers or Electronics Engineers.

Availability of Skilled Workers

Upon completion of the estimated numerical shortages, it becomes apparent that shortages are anticipated in this occupation between 2005 and 2012. Although the DWD projections indicated a need for 23 workers per year, primary data obtained from local employers indicates that the need for these workers is greater than reflected in the DWD projections. NSWC Crane, SAIC, PTS Electronics, Raydar and Tri-Star Engineering are the companies that employ most of these workers in the region. As a result of WorkOne staff interviews with these companies about their future annual hiring projections, it is anticipated that 81 workers will be needed each year to fill the anticipated job openings.

Defense contractors of NSWC Crane expressed some difficulty finding and keeping skilled workers, often because individuals with the skills needed to effectively do these jobs often seek and get employment directly with Crane. These companies also indicated that it is sometimes difficult to keep workers in these positions because of their reliance on contracts with Crane and the uncertainty of future contracts. Human Resources staff from NSWC Crane did not report any difficulty finding workers for these jobs. Specific numerical estimates worksheets for this occupation are contained in Appendix B.

Numeric Estimates of Projected Shortages

The Electrical and Electronics Engineering Technicians occupation is projected to have a 2 year (through 2007) shortage of 134 workers and a projected 7 year (through 2012) shortage of 418 workers.

2. Drafting, Engineering and Mapping Technicians, all other (OES 17-3099, includes SOC 17-3001, 17-3002, 17-3019 and 17-3029)

Jobs and Wages

According to 2003 Occupational and Industry Estimates 2003, 313 workers were employed in jobs classified as Drafting, Engineering, and Mapping Technicians, all other. These occupations include occupations such as laser specialists, metallurgical technicians, material stress testers and others. From looking at the data nearly all the openings for these workers are with one employer, NWSC Crane. The Occupational and Industry Projections report indicates that 100 openings are anticipated during the period 2002-2012. According to DWD's Occupations and Starting Wages Report for the counties of EGR 8, during the period October 1, 2004 to September 30, 2005 there were 19 openings for Drafting, Engineering and Mapping Technicians recorded by the CS3 system.

These are jobs that pay very well. According to the Occupational and Industry Estimates report for 2003, the average entry level wage for these jobs was $20.76 per hour and the median wage was $28.16.

Training and Skills

The website www.learnmoreindiana.org indicates that most of these jobs require at least an Associate's degree. In addition to the needed technical skills, workers in these jobs also need the following skills: mathematics, information organization, reading comprehension, information gathering, and writing.

With an ONet job zone difficulty level of 3, this occupation requires a medium level of preparation with 1 – 4 years vocational preparation. Previous work-related skills, knowledge, or experience are typically required. Employees in this occupation usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. Occupations at this level usually involve using communication and organizational skills to coordinate, supervise, manage, or train others to accomplish goals.

Both Vincennes University and Ivy Tech Community College provide two year training programs to prepare individuals for these technical jobs. In order to gain admission to these training programs, students must be high school graduates and take assessments administered by the schools. Both schools report that for students applying for these training programs, reading and math skills are among the top areas where remediation is needed to increase the likelihood of success in the program. The training institutions report that students fail to complete the program most frequently because of the rigor of the program, the inability to complete the program in the two year timeframe, financial problems, and a lack of preparation for college level work.

Both VU and Ivy Tech supplied numerical estimates for the number of students projected to complete these programs. Although they do not track exactly how many graduates of these programs work at jobs located within EGR 8, both schools provided estimates for these projections as well. To arrive at the production numbers included in the numerical estimate worksheets in Appendix B, the number of projected completers was multiplied by the percent likely to find a job in EGR 8.

Career Path

Engineering technicians usually begin by performing routine duties under the close supervision of an experienced technician, technologist, engineer, or scientist. As they gain experience, they are given more difficult assignments with only general supervision. Some engineering technicians eventually become supervisors. Those who want to increase their income even more can pursue additional training and become Electrical Engineers or Electronics Engineers.

Availability of Skilled Workers

Based upon review of the data, the EGR 8 consortium initially believed that this may be an occupation where shortages could be anticipated. However, upon a thorough review of the labor market information, including information provided by Crane, and completion of the numerical estimates for shortages, it became evident that this area is not anticipated to experience shortages in the upcoming years.

This occupation is unique in that a single employer, NSWC Crane, employs nearly all (86%) of the workers. DWD projections indicate 10 openings per year are likely for this occupational area. When surveyed by local WorkOne staff, NSWC Crane indicated a turnover rate of only about 2%. Local Employment Dynamics (LED) data from the 1st quarter of 2004 for all Professional, Scientific and Technical Services jobs indicates a 10.7% turnover rate within the Bloomington Metropolitan Statistical Area (MSA).

If the 2% turnover rate is applied to Crane's 270 jobs in this occupation, the result is an estimated 6 openings per year. When the 10.7% turnover rate is applied to the 40 jobs located at employers other than Crane, the result is an estimate of 4 jobs per year. When added together, the estimated Crane jobs (6) and the estimated non-Crane jobs (4) equal the DWD projection of 10 openings per year reflected by the demand side worksheet for this occupation contained in Appendix B.

Projected Numerical Shortages

Since nearly all of these workers are employees of NSWC Crane, WorkOne staff interviewed Human Resources staff from Crane to determine if shortages are anticipated. Crane staff indicated no difficulty in finding these workers in the past and does not anticipate encountering any difficulty in the next few years. For this reason, this occupation will not be included in the upcoming root causes and solutions reports.

Hospitality and Tourism

Based upon research and discussions with employers in the hospitality and tourism business, the Executive Team and Consortium in EGR 8 agreed that the best approach to meet workers shortages in this industry was to address necessary skills sets rather than specific occupations.

Jobs and Wages

The job titles within the hospitality and tourism industry are numerous and varied. The one employer who will likely hire the most workers in this industry in the next two years will be Benchmark Management. Benchmark has been selected to operate the French Lick Springs Resort and Casino as well as the West Baden Springs Resort. In taking on the management responsibility for this large project in Orange County, Benchmark will need to increase its number of workers from the current level of 350 to approximately 1,450.

Human resources staff from Benchmark have been active participants with the SSI project and have been willing to share information on the workforce needs that they anticipate. A wide variety of workers will be needed including: retail sales workers, laundry workers, restaurant cooks, recreation attendants, front desk staff, accounts payable clerks, cashiers, conference planners, sales and marketing administrators, bartenders, security officers, valet parking attendants, housekeepers, restaurant servers, casino dealers, slot machine attendants, cage cashiers, surveillance agents, and many supervisory and management positions. Except for the casino positions, the jobs available in Orange County are very similar to food service, accommodation and recreation jobs offered by many employers in the hospitality sector throughout the region. Brown and Monroe Counties, in particular, also regularly have openings in many of these same jobs.

Wages in the hospitality industry range from low pay to high pay depending upon the specific position. For example, Benchmark plans to hire 541 hourly positions for the French Lick Resort. While 375 of these positions pay below $25,000 per year, the remaining 166 positions pay above $25,000 per year. Of these 166 positions, 77 pay between $30,000 and $41,000 per year. In addition, 76 salaried positions will be available at the resort. These jobs range in pay from $27,000 to $180,000, with 22 of these jobs paying more than $40,000. The casino will have 539 hourly positions with 75 of these jobs paying above $30,000 per year. The salaried positions at the casino will range from $27,000 per year to $180,000. Of the 78 salaried positions, 39 jobs will pay above $36,000 per year. While some of the resort and casino jobs pay as low as $14,500 per year, these workers often make very generous tips that are not included in the wage data. Some companies within the hospitality industry, such as Benchmark, also offer workers a very generous benefit package including medical, dental, vision and life insurance, disability, vacation and holiday pay, 401k with employer match and educational assistance.

Training and Skills

The consistent input from employers throughout this industry is that, except for upper level management or other skilled jobs, they can train the right workers for most of the jobs within

their industry. The real challenge for this industry is to find individuals with a passion for serving people who also have the basic and social skills necessary to be successful in this industry. Based upon a review of ONet data and conversations with employers in the hospitality industry, the following skills are needed for all workers within the industry: active learning, mathematics, reading comprehension, speaking, writing, judgment and decision making, coordination, instructing, and service orientation. In addition, industry representatives have identified the following additional qualities that are needed by hospitality workers: positive attitude, outgoing and friendly personality, professional appearance, honesty, ability and willingness to work a flexible schedule including weekends and holidays, and attention to detail.

Both Vincennes University and Indiana University have training programs for workers in the Hospitality career field. IU offers a Bachelor's degree in Tourism Management. Entry level requirements for this program include earning a "C" or better in specific general education courses and maintaining a GPA of at least 2.0.

Vincennes University offers several programs that are designed to prepare workers for Hospitality jobs. In addition to a one year Hospitality certificate, VU also offers two year Associate's degree programs in Culinary Arts and Hotel and Motel Management. VU cites mathematics, reading and English as the subjects that are most often be remediated in students who enter these training programs. Both institutions indicate that students who fail to complete these programs most often do so due to academic issues, financial problems, and changing career goals.

Career Path

There are numerous career paths within the hospitality industry for workers who have the previously mentioned skills sets. Many companies that operate within the hospitality and tourism sector have internal training programs that allow workers to continue to increase their skills and gain the qualifications needed for advancement within the industry. As can be seen from the jobs and wages description above, there are many possible career paths within the industry that can lead to sizable increases in personal income for workers who take the initiative to continue learning. Supervisory and management positions within the industry pay well and frequently these positions are occupied by individuals who have worked their way up the hospitality industry's career ladder.

V. Critical Skills Sets

Many of the skills identified by this report cut across several industry sectors. The table below illustrates the skills sets that were most frequently identified as needed for the industry sectors and critical occupations contained in this report. The definitions used by ONet for these skills are on the page that follows.

ONet Skills	Prod. Sup.	Team Assm.	RN	LPN	Nrs Aide	Resp. Ther.	Elec. Tech.	Other Tech	Hosp.
Basic Skills									
Active Learning				X		X	X		
Active Listening			X	X	X	X			X
Critical Thinking	X		X	X	X	X			X
Learning Strategies									X
Mathematics	X		X	X	X	X		X	X
Monitoring			X	X	X	X			
Reading Comprehension	X	X	X	X	X	X	X	X	X
Speaking	X		X	X	X	X			X
Writing	X		X	X				X	
Complex Prob. Solv. Skills									
Complex Prob. Solving							X		
Resource Management									
Mgmt. of Financial Res.	X								
Mgmt. of Personnel Res.	X								
Time Management	X		X	X	X	X	X		X
Systems Skills									
Judgment/ Decision Mk	X			X			X		
Technical Skills									
Equipment Maintenance							X		
Equipment Selection	X						X		
Troubleshooting						X	X		
Repairing							X		
Operation Monitoring						X	X		
Social Skills									
Coordination	X				X				
Instruction			X		X	X			
Service Orientation			X	X	X	X			X
Social Perception			X		X				X

Basic Skills

Developed capacities that facilitate learning or the more rapid acquisition of knowledge

Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.
Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Learning Strategies — Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Mathematics — Using mathematics to solve problems.
Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
Speaking — Talking to others to convey information effectively.
Writing — Communicating effectively in writing as appropriate for the needs of the audience.

Complex Problem Solving Skills

Developed capacities used to solve novel, ill-defined problems in complex, real-world settings

Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

Resource Management Skills

Developed capacities used to allocate resources efficiently

Management of Financial Resources — Determining how money will be spent to get the work done, and accounting for these expenditures.
Management of Personnel Resources — Motivating, developing, and directing people as they work, identifying the best people for the job.
Time Management — Managing one's own time and the time of others.

Systems Skills

Developed capacities used to understand, monitor, and improve socio-technical systems

Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Technical Skills

Developed capacities used to design, set-up, operate, and correct malfunctions involving application of machines or technological systems

Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.
Equipment Selection — Determining the kind of tools and equipment needed to do a job.
Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.
Repairing — Repairing machines or systems using the needed tools.
Troubleshooting — Determining causes of operating errors and deciding what to do about it.

Social Skills

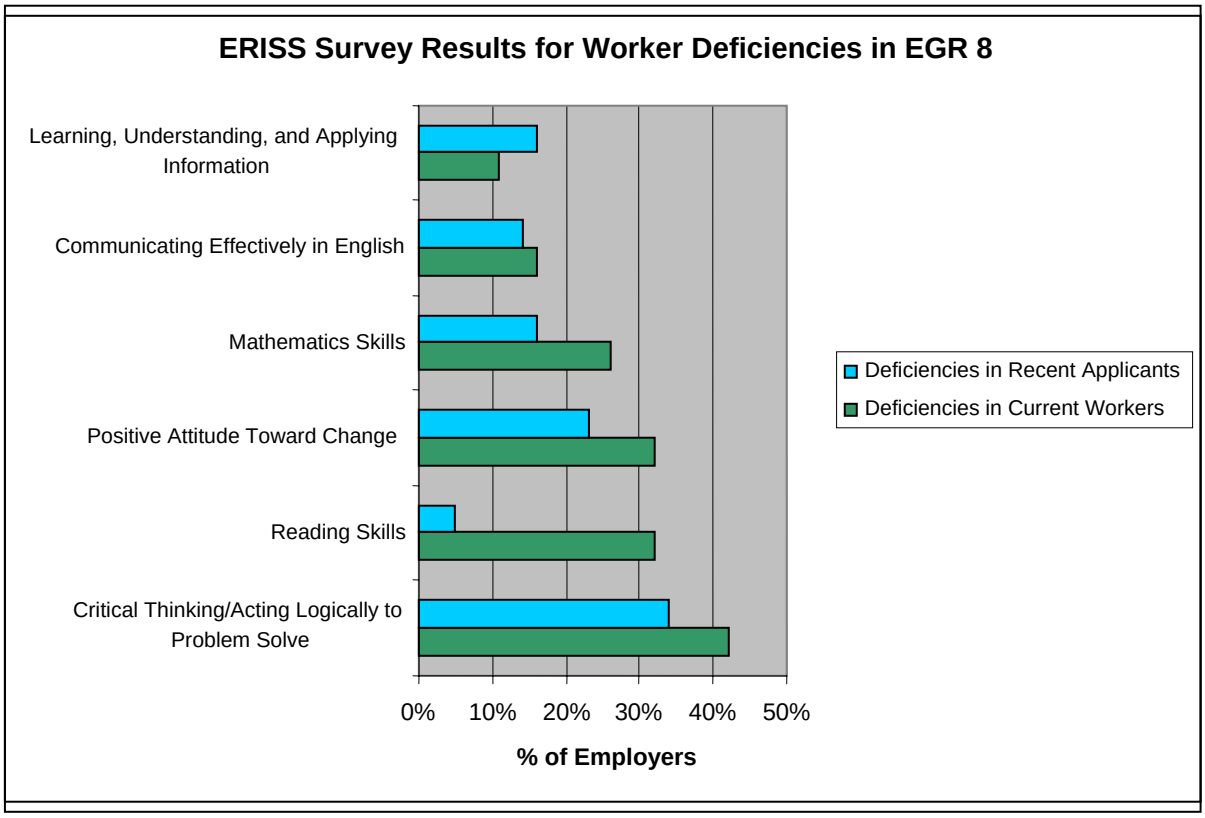
Developed capacities used to work with people to achieve goals

Coordination — Adjusting actions in relation to others' actions.
Instructing — Teaching others how to do something.
Service Orientation — Actively looking for ways to help people.
Social Perceptiveness — Being aware of others' reactions and understanding why they react as they do.

The ONet skills identified for each position were presented to the employers who participated in interviews and discussions with WorkOne staff. All these employers agreed that the identified ONet skills are needed for the targeted positions.

The ONet skills that cut across 5 or more of the key occupations for EGR 8 are: active listening, critical thinking, mathematics, reading comprehension, speaking, time management and service orientation. Further research will be done in subsequent reports as to determine potential ways to strengthen these skills sets among workers in EGR 8.

The ERISS survey data also indicates not only a need for these types of basic and soft skills, but also documents current deficiencies in these skill areas. In EGR 8, 64 employers responded to the ERISS survey question regarding the two most common deficiencies among recent applicants for jobs in their organization and 19 employers responded to the question regarding the two most common deficiencies among current workers. The top 5 responses to these questions are contained in the table below:



When looking at the INEWS website Skills In Demand report, skills that have frequently shown up in the top ten in recent weeks for the counties of EGR 8 include: following detailed instructions, managing time effectively, applying good listening skills, reading and applying information, and working as a team member. The SSI Consortium members as well as numerous other employers that participated in discussions with staff working on the SSI project also agreed that these skills are commonly deficient among their applicants and/or employees.

Another area of critical skills that must be included in this report is the area of job readiness and job retention skills. A frequent discussion item at SSI Consortium meetings and with employers who participated in interviews with WorkOne staff is the lack of job readiness and/or work ethic among applicants and employees.

Many employers expressed a willingness to train workers on the specific duties they must perform on the job. However, attendance, punctuality, commitment, teamwork, and basic skills such as reading, writing, speaking, and mathematics are skills and abilities that employers do not have the time, resources, or expertise to teach in the workplace. Further, the absence of these skills costs local employers thousands of dollars each year in high turnover rates, lost productivity, excessive waste, poor quality, and customer complaints.

The root causes and solutions reports will further explore the reasons why so many employers in the region's key industries struggle to find workers who have these skills and identify ways to improve the overall job readiness and retention skills of the workforce.

VI. Next Steps

Workforce development and economic development must work together to grow jobs and personal income for the residents of our region. Regardless of the occupation, the quality and availability of a skilled workforce has a huge impact upon the economic development efforts of the region. According to a survey conducted in 2004 by IBRC on behalf of the Bloomington Economic Development Corporation, 98.4% of Bloomington employers indicate that the quality of the workforce is either an "essential" or "very important" factor that influences the success of their business. In addition, 83.6% of those responding indicate that the availability of labor is "essential" or "very important" to their success. The survey found that employers believe the quality of the workforce and the availability of labor are the two most important local factors related to business success.

Since the skills and abilities of the workforce have such an impact upon the ability of local economic development representatives to meet their goals, the SSI Consortium in EGR 8 believes it is important to actively involve these individuals in the SSI project. In support of this goal, a Request for Proposals was issued to identify entities interested in providing assistance on the next two phases of the SSI project, the Root Causes Report and the Solutions Report.

To insure strong involvement of these entities, eligible bidders were local economic development organizations, chambers of commerce and other local entities engaged in economic and workforce development throughout the region. The successful bidder was the Bloomington Economic Development Corporation and their selected subcontractor, Thomas P. Miller and Associates. Also important to this partnership was the inclusion of economic development representatives from Daviess and Orange Counties in the project. Together this team of individuals will further explore the causes for the shortages indicated by the table below:

Occupation	Projected 2 Year Worker Shortage (through 2007)	Projected 7 Year Worker Shortage (through 2012)
First Line Supervisors of Production Workers	18	18
Team Assemblers	234	694
Registered Nurses	191	351
Licensed Practical Nurses	18	148
Nurses Aides	59	94
Respiratory Therapists	26	26
Electrical and Electronics Engineering Techs	134	418
Drafting, Engineering and Mapping Techs, other	0	0

The information from this Occupation and Skills Shortages Report will be used as the foundation upon which Corcoran & Wishart, LLC, Vincennes University, the SSI Consortium, Local WorkOne staff, and local economic development representatives will work together to build the future success of the Strategic Skills Initiative in EGR 8.

Appendix A:

Industry Sector Analysis

1.'Which industries employ the most workers?	Industry	# of Jobs	Industry	# of Jobs		
IBRC 2004 Q4	1. Manufacturing	18,124	6. Public Admin	7,703	Transport/Warehouse	3,114
by 2 digit NAICS	2. Educational Services	17,690	7. Construction	5,880	Wholesale Trade	2,746
	3. Retail Trade	13,674	8. Prof/Scient/Tech Svc	3,571	Mining	1,388
	4. Health Care	13,331	9. Adm/Spt/Wst Mgt/Remed	3,419		
	5. Accomm/Food Svc	11,878	10. Other Services	3,209		

National data	Industry	# of Jobs	Industry	# of Jobs		
IBRC 2004 Q4	1. Health Care	15,908,468	6. Adm/Spt/Wst Mgt/Remed	8,155,291	Wholesale Trade	5,693,747
by 2 digit NAICS	2. Retail Trade	15,617,876	7. Construction	7,281,081	Transport/Warehouse	5,234,169
	3. Manufacturing	14,325,371	8. Public Admin	7,092,885	Mining	531,220
	4. Educational Services	12,026,080	9. Prof/Scient/Tech Svc	6,984,502		
	5. Accomm/Food Svc	10,693,125	10. Finance and Insurance	5,877,676		

1a.'Which industries employ the highest % of workers?	Industry	% of Jobs	Industry	% of Jobs		
IBRC 2004 Q4	1. Manufacturing	15.9%	6. Public Admin	6.8%	Transport/Warehouse	2.7%
by 2 digit NAICS	2. Educational Services	15.5%	7. Construction	5.2%	Wholesale Trade	2.4%
Jobs shown comprise	3. Retail Trade	12.0%	8. Prof/Scient/Tech Svc	3.1%	Mining	1.2%
92.7% of EGR 8 jobs	4. Health Care	11.7%	9. Adm/Spt/Wst Mgt/Remed	3.0%		
	5. Accomm/Food Svc	10.4%	10. Other Services	2.8%		
NATIONAL DATA	**Industry**	**% of Jobs**	**Industry**	**% of Jobs**		
IBRC 2004 Q4	1. Health Care	12.1%	6. Adm/Spt/Wst Mgt/Remed	6.2%	Wholesale Trade	4.3%
by 2 digit NAICS	2. Retail Trade	11.9%	7. Construction	5.5%	Transport/Warehouse	4.0%
Total US jobs	3. Manufacturing	10.9%	8. Public Admin	5.4%	Mining	0.4%
131,236,644	4. Educational Services	9.2%	9. Prof/Scient/Tech Svc	5.3%		
	5. Accomm/Food Svc	8.1%	10. Finance and Insurance	4.5%		

2. 'Which industries pay the best?	Industry	Avg Wk Wage	Industry	Avg Wk Wage		
IBRC 2004 Q4	1. Mgmt of Companies	$1,698	6. Manufacturing	$762	Transport/Warehouse	$633
by 2 digit NAICS	2. Mining	$1,116	7. Wholesale Trade	$719	Educational Services	$568
	3. Utilities	$1,013	8. Finance and Insurance	$699	Adm/Spt/Wst Mgt/Remed	$435
	4. Prof/Scient/Tech Svc	$841	9. Construction	$686	Retail Trade	$374
	5. Public Admin	$785	10. Health Care	$655	Accomm/Food Svc	$208
NATIONAL DATA	**Industry**	**Avg Wk Wage**	**Industry**	**Avg Wk Wage**		
IBRC 2004 Q4	1. Mgmt of Companies	$1,639	6. Information	$1,208	Transport/Warehouse	$847
by 2 digit NAICS	2. Prof/Scient/Tech Svc	$1,394	7. Wholesale Trade	$1,128	Health Care	$788
	3. Finance and Insurance	$1,391	8. Manufacturing	$986	Educational Services	$697
	4. Mining	$1,361	9. Public Admin	$899	Adm/Spt/Wst Mgt/Remed	$563
	5. Utilities	$1,292	10. Construction	$862	Retail Trade	$497
					Accomm/Food Svc	$296
3a. Which industries have been growing fastest in jobs?	**Industry**	**Difference in # of Jobs**	**Industry**	**Difference in # of Jobs**		
IBRC 2004 Q4 compared to 2001 Q4	1. Health Care	871	6. Wholesale Trade	240	Mining	-8
by 2 digit NAICS	2. Prof/Scient/Tech Svc	749	7. Construction	206	Public Admin	-113
	3. Accomm/Food Svc	559	8. Finance and Insurance	110	Transport/Warehouse	-320
Total EGR 8 growth	4. Educational Services	502	9. Arts, Entertain and Rec	14	Retail Trade	-421
1,803	5. Adm/Spt/Wst Mgt/Remed	422	10. Real Estate and Leasing	4	Manufacturing	-836

Percent Growth by industry	Industry	% growth	Industry	% growth		
EGR 8	1. Prof/Scient/Tech Svc	20.97%	6. Finance and Insurance	4.42%	Mining	-0.58%
Total EGR growth 1.58%	2. Adm/Spt/Wst Mgt/Remed	12.43%	7. Construction	3.50%	Public Admin	-1.47%
	3. Wholesale Trade	8.74%	8. Educational Services	2.84%	Retail Trade	-3.08%
	4. Health Care	6.53%	9. Arts, Entertain and Rec	2.31%	Manufacturing	-4.61%
	5. Accomm/Food Svc	4.70%	10. Real Estate and Leasing	0.25%	Transport/Warehouse	-10.28%
NATIONAL DATA	**Industry**	**# of Jobs**	**Industry**	**# of Jobs**		
IBRC 2004 Q4 compared to 2001 Q4	1. Health Care	1,038,665	6. Finance and Insurance	178,664	Mining	-5308
by 2 digit NAICS	2. Accomm/Food Svc	683,237	7. Arts, Entertain and Rec	109,065	Manufacturing	-1554056
Total US job growth	3. Educational Services	492,677	8. Public Admin	66,771	Transport/Warehouse	-70738
1,675,944	4. Adm/Spt/Wst Mgt/Remed	452,336	9 Real Estate and Leasing	66,181	Prof/Scient/Tech Svc	NA
	5. Construction	273,709	10. Retail Trade	58,248	Wholesale Trade	NA
Percent Growth by industry	**Industry**	**% growth**	**Industry**	**% growth**		
US	1. Health Care	6.53%	6. Construction	3.76%	Mining	-1.00%
Total US growth 1.28%	2. Accomm/Food Svc	6.39%	7 Real Estate and Leasing	3.08%	Manufacturing	-10.85%
	3. Adm/Spt/Wst Mgt/Remed	5.55%	8. Finance and Insurance	3.04%	Transport/Warehouse	-1.35%
	4. Arts, Entertain and Rec	5.13%	9. Public Admin	0.94%	Prof/Scient/Tech Svc	NA
	5. Educational Services	4.10%	10. Retail Trade	0.37%	Wholesale Trade	NA

3b. Which industries have been growing fastest in establishments?	**Industry**	**Difference in # of Estab**	**Industry**	**Difference in # of Estab**		
IBRC 2004 Q4 compared to 2001 Q4	1. Construction	63	6. Wholesale Trade	16	Public Admin	1
by 2 digit NAICS	2. Prof/Scient/Tech Svc	29	7. Adm/Spt/Wst Mgt/Remed	11	Mining	-1
	3. Transport/Warehouse	25	8. Educational Services	11	Manufacturing	-10
Total Estab growth is 155	4. Health Care	25	9. Finance and Insurance	8	Retail Trade	-37
	5. Accomm/Food Svc	19	10. Arts, Entertain and Rec	5		
3c. Which industries have been growing fastest in wages?	**Industry**	**Difference in Wkly Wage**	**Industry**	**Difference in Wkly Wage**		
IBRC 2004 Q4 compared to 2001 Q4	1. Utilities	$198	6. Health Care	$110	Manufacturing	$68
by 2 digit NAICS	2. Ag, Forest, Fish, Hunt	$135	7. Wholesale Trade	$103	Construction	$59
	3. Prof/Scient/Tech Svc	$125	8. Mining	$81	Retail Trade	$42
	4. Finance and Insurance	$123	9. Public Admin	$79	Accomm/Food Svc	$16
	5. Adm/Spt/Wst Mgt/Remed	$114	10. Transport/Warehouse	$71	Educational Services	-$48

4. Which industries will offer the most jobs in the next few years?	**Industry**	**Projected Openings**	**Industry**	**Projected Openings**		
IBRC 2002-2012 projections by	1. Health Care	3,300	6. Adm/Spt/Wst Mgt/Remed	340	Wholesale Trade	130
Industry	2. Educational Services	2,580	7. Transport/Warehouse	320	Retail Trade	30
	3. Public Admin	950	8. Accomm/Food Svc	310	Mining	-140
	4. Prof/Scient/Tech Svc	660	9. Arts, Entertain and Rec	190	Manufacturing	-1,040
	5. Construction	350	10. Other Services	140		
5a. In which industries do we now have the greatest competitive advantage? IN Base	**Industry**	**LQ**	**Industry**	**LQ**		
LQ EGR 8 compared to IN base	1. Mining	5.45	6. Real Estate and Leasing	1.11	Health Care	0.99
2004 Q4 by 2 digit NAICS	2. Educational Services	1.78	7. Information	1.08	Manufacturing	0.8
	3. Public Admin	1.53	8. Prof/Scient/Tech Svc	1.01	Transport/Warehouse	0.62
	4. Utilities	1.33	9. Retail Trade	1.01	Wholesale Trade	0.58
	5. Accomm/Food Svc	1.29	10. Construction	0.99	Adm/Spt/Wst Mgt/Remed	0.55

5a1. In which industries do we now have the greatest increasing competitive advantage?	**Industry**	**LQ Difference**	**Industry**	**LQ Difference**		
*LQ EGR 8 compared to **IN base***	1. Mining	0.28	6. Construction	0.03	Manufacturing	-0.01
2004 Q4 compared to 2001 Q4	2. Prof/Scient/Tech Svc	0.17	7. Arts, Entertain and Rec	0.01	Retail Trade	-0.01
by 2 digit NAICS	3. Utilities	0.12	8. Health Care	0	Adm/Spt/Wst Mgt/Remed	-0.01
	4. Wholesale Trade	0.05	9. Accomm/Food Svc	0	Transport/Warehouse	-0.06
	5. Finance and Insurance	0.04	10. Other Services	0	Educational Services	-0.06
					Public Admin	-0.08
5b. Midwest Base	**Industry**	**LQ**	**Industry**	**LQ**		
LQ EGR 8 compared to midwest	1. Mining	6.37	6. Manufacturing	1.24	Transport/Warehouse	0.65
base 2004 Q4 by 2 digit NAICS	2. Educational Services	1.63	7. Construction	1.14	Wholesale Trade	0.55
	3. Accomm/Food Svc	1.42	8. Retail Trade	1.05	Adm/Spt/Wst Mgt/Remed	0.52
	4. Utilities	1.38	9. Health Care	0.9	Prof/Scient/Tech Svc	0.61
	5. Public Admin	1.36	10. Real Estate and Leasing	0.89		

5b1. In which industries do we now have the greatest increasing competitive advantage?	**Industry**	**LQ Difference**	**Industry**	**LQ Difference**		
LQ EGR 8 compared to ***Midwest base***	1. Mining	0.22	6. Construction	0.04	Health Care	0
2004 Q4 compared to 2001 Q4	2. Prof/Scient/Tech Svc	0.13	7. Information	0.03	Retail Trade	-0.04
by 2 digit NAICS	3. Utilities	0.09	8. Public Admin	0.02	Accomm/Food Svc	-0.04
	4. Wholesale Trade	0.05	9. Adm/Spt/Wst Mgt/Remed	0.02	Educational Services	-0.05
	5. Manufacturing	0.04	10. Finance and Insurance	0.01	Transport/Warehouse	-0.07
5c. US Base	**Industry**	**LQ**	**Industry**	**LQ**		
LQ EGR 8 compared to **US base**	1. Mining	3.01	6. Utilities	1.07	Transport/Warehouse	0.69
2004 Q4 by 2 digit NAICS	2. Educational Services	1.69	7. Retail Trade	1.01	Wholesale Trade	0.56
	3. Manufacturing	1.46	8. Health Care	0.97	Adm/Spt/Wst Mgt/Remed	0.48
	4. Accomm/Food Svc	1.28	9. Construction	0.93	Prof/Scient/Tech Svc	0.59
	5. Public Admin	1.25	10. Real Estate and Leasing	0.85		

5c1. In which industries do we now have the greatest increasing competitive advantage?	**Industry**	**LQ Difference**	**Industry**	**LQ Difference**		
LQ EGR 8 compared to **US base**	1. Prof/Scient/Tech Svc	0.11	6. Utilities	0.01	Retail Trade	-0.04
2004 Q4 compared to 2001 Q4	2. Manufacturing	0.08	7. Finance and Insurance	0.01	Accomm/Food Svc	-0.03
by 2 digit NAICS	3. Wholesale Trade	0.05	8. Mining	0	Educational Services	-0.03
	4. Information	0.03	9. Health Care	0	Transport/Warehouse	-0.06
	5. Adm/Spt/Wst Mgt/Remed	0.03	10. Construction	-0.01	Public Admin	-0.04
6. 'Which industries seem to be building a strong competitive advantage for the future?	**Industry**	**Reg Shift**	**Industry**	**Reg Shift**		
Shift Share 2004 Q1 compared to	1. Educational Services	1,758	6. Wholesale Trade	109	Public Admin	-101
2001 Q1 - Regional Shift	2. Manufacturing	711	7. Information	96	Transport/Warehouse	-209
	3. Prof/Scient/Tech Svc	569	8. Mining	57	Health Care	-389
	4. Construction	320	9. Ag, Forest, Fish, Hunt	44	Retail Trade	-501
	5. Adm/Spt/Wst Mgt/Remed	179	10. Accomm/Food Svc	28		

7. Which industries are positioned to capitalize on regional, national or global growth trends?	Industry	Industry Mix	Industry	Industry Mix		
Shift Share 2004 Q1 compared to 2001	1. Educational Services	1,208	6. Finance and Insurance	113	Mining	-22
Q1 - Industry Mix	2. Health Care	1,198	7. Construction	102	Wholesale Trade	-43
	3. Accomm/Food Svc	611	8. Arts, Entertain and Rec	47	Adm/Spt/Wst Mgt/Remed	-52
	4. Public Admin	238	9. Real Estate and Leasing	43	Prof/Scient/Tech Svc	-60
	5. Other Services	122	10. Ag, Forest, Fish, Hunt	6	Retail Trade	-87
					Transport/Warehouse	-135
					Manufacturing	-2955

Appendix B:

Skills Shortage Estimate Worksheets

Worksheet for Calculating Shortages or Surpluses of One Occupation

Worksheet for Calculating Shortages or Surpluses of One Occupation	8
Occupation Name:	First Line Supervisors/Managers of Production and Operating Workers
Occupation SOC:	51-1011

A. Lower projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		14	10	6	2	-2	-6	-10
New demand during year		17	17	17	17	17	17	17
New production during year		21	21	21	21	21	21	21
Net migration during year		0	0	0	0	0	0	0
Net change during year		-4	-4	-4	-4	-4	-4	-4
Carryover to next year (+/-)	14	10	6	2	-2	-6	-10	-14

B. Middle projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		18	18	18	18	18	18	18
New demand during year		21	21	21	21	21	21	21
New production during year		21	21	21	21	21	21	21
Net migration during year		0	0	0	0	0	0	0
Net change during year		0	0	0	0	0	0	0
Carryover to next year (+/-)	18	18	18	18	18	18	18	18

C. Upper projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		22	26	30	34	38	42	46
New demand during year		25	25	25	25	25	25	25
New production during year		21	21	21	21	21	21	21
Net migration during year		0	0	0	0	0	0	0
Net change during year		4	4	4	4	4	4	4
Carryover to next year (+/-)	22	26	30	34	38	42	46	50

Notes:

(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.

(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.
B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.
C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Demand Side Worksheet

EGR Name:	8
Occupation Name:	First Line Supervisors/Managers of Production and Operating Workers
Occupation SOC:	51-1011

1. Estimated Job vacancies, end of 2005

Lower estimate	14
Middle estimate	18
Upper estimate	22

2. Projected number of job openings annually due to growth and net replacements:

Year	2006	2007	2008	2009	2010	2011	2012
A. Lower projection:							
Total, all industries in EGR	17	17	17	17	17	17	17
Transportation Eqyuioment	2	2	2	2	2	2	2
Misc. Manuf. (incl medical devices)	2	2	2	2	2	2	2
Food Manufacturing	1	1	1	1	1	1	1
Plastics and Rubber Products	1	1	1	1	1	1	1
Fabricated Metal	1	1	1	1	1	1	1
Furniture and Related Products	1	1	1	1	1	1	1
B. Middle projection:							
Total, all industries in EGR	21	21	21	21	21	21	21
Transportation Equipment	3	3	3	3	3	3	3
Misc. Manuf. (incl medical devices)	2	2	2	2	2	2	2
Food Manufacturing	1	1	1	1	1	1	1
Plastics and Rubber Products	1	1	1	1	1	1	1
Fabricated Metal	1	1	1	1	1	1	1
Furniture and Related Products	1	1	1	1	1	1	1
C. Upper projection:							
Total, all industries in EGR	25	25	25	25	25	25	25
Transportation Eqyuioment	3	3	3	3	3	3	3
Misc. Manuf. (incl medical devices)	2	2	2	2	2	2	2
Food Manufacturing	1	1	1	1	1	1	1
Plastics and Rubber Products	1	1	1	1	1	1	1
Fabricated Metal	1	1	1	1	1	1	1
Furniture and Related Products	1	1	1	1	1	1	1

Notes:

This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Supply Side Worksheet #1 ("Production")

EGR Name:	8
Occupation Name:	First Line Supervisors/Managers of Production and Operating Workers
Occupation SOC:	51-1011

Projected "production" of new entrants into this occupation, by year

Year	2006	2007	2008	2009	2010	2011	2012
a. Graduates/completers of education and training programs in this EGR:							
Vincennes University							
Ivy Tech Community College							
Indiana University	21	21	21	21	21	21	21
etc. (add as necessary)							
b. Other sources of entrants (other than in-migration)							
Source #1							
c. Total new supply	**21**	**21**	**21**	**21**	**21**	**21**	**21**

Supply Side Worksheet #2 ("Migration")

EGR Name:	8
Occupation Name:	First Line Supervisors/Managers of Production and Operating Workers
Occupation SOC:	51-1011

Year	2006	2007	2008	2009	2010	2011	2012
1. Projected IN-migration of workers in this occupation to this EGR, by year							
a. From outside this EGR							
b. From other occupations							
2. Projected OUT-migration of workers in this occupation to this EGR, by year							
a. To places outside this EGR							
b. Into other occupations							
3. Net IN-Migration	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name:	8
Occupation Name:	Team Assemblers
Occupation SOC:	51-2092

A. Lower projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		25	99	173	247	321	395	469
New demand during year		74	74	74	74	74	74	74
New production during year		0	0	0	0	0	0	0
Net migration during year		0	0	0	0	0	0	0
Net change during year		74	74	74	74	74	74	74
Carryover to next year (+/-)	25	99	173	247	321	395	469	543

B. Middle projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		50	142	234	326	418	510	602
New demand during year		92	92	92	92	92	92	92
New production during year		0	0	0	0	0	0	0
Net migration during year		0	0	0	0	0	0	0
Net change during year		92	92	92	92	92	92	92
Carryover to next year (+/-)	50	142	234	326	418	510	602	694

C. Upper projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		100	210	320	430	540	650	760
New demand during year		110	110	110	110	110	110	110
New production during year		0	0	0	0	0	0	0
Net migration during year		0	0	0	0	0	0	0
Net change during year		110	110	110	110	110	110	110
Carryover to next year (+/-)	100	210	320	430	540	650	760	870

Notes:

(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.

(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Demand Side Worksheet

EGR Name:	8
Occupation Name:	Team Assemblers
Occupation SOC:	51-2092

1. Estimated Job vacancies, end of 2005

Lower estimate	25
Middle estimate	50
Upper estimate	100

2. Projected number of job openings annually due to growth and net replacements:

Year	2006	2007	2008	2009	2010	2011	2012
A. Lower projection:							
Total, all industries in EGR	74	74	74	74	74	74	74
Misc. Manuf. (incl. medical device)	50	50	50	50	50	50	50
Transportation Equipment	14	14	14	14	14	14	14
Furniture and Related Products	9	9	9	9	9	9	9
B. Middle projection:							
Total, all industries in EGR	92	92	92	92	92	92	92
Misc. Manuf. (incl. medical device)	62	62	62	62	62	62	62
Transportation Equipment	18	18	18	18	18	18	18
Furniture and Related Products	11	11	11	11	11	11	11
C. Upper projection:							
Total, all industries in EGR	110	110	110	110	110	110	110
Misc. Manuf. (incl. medical device)	74	74	74	74	74	74	74
Transportation Equipment	21	21	21	21	21	21	21
Furniture and Related Products	13	13	13	13	13	13	13

Notes:

This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Supply Side Worksheet #1 ("Production")

EGR Name:	8
Occupation Name:	Team Assemblers
Occupation SOC:	51-2092

Projected "production" of new entrants into this occupation, by year

Year	2006	2007	2008	2009	2010	2011	2012
a. Graduates/completers of education and training programs in this EGR:							
Institution #1	0	0	0	0	0	0	0
etc. (add as necessary)							
b. Other sources of entrants (other than in-migration)							
Source #1							
c. Total new supply	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Supply Side Worksheet #2 ("Migration")

EGR Name:	8
Occupation Name:	Team Assemblers
Occupation SOC:	51-2092

Year	2006	2007	2008	2009	2010	2011	2012
1. Projected IN-migration of workers in this occupation to this EGR, by year							
a. From outside this EGR	0	0	0	0	0	0	0
b. From other occupations							
2. Projected OUT-migration of workers in this occupation to this EGR, by year							
a. To places outside this EGR	0	0	0	0	0	0	0
b. Into other occupations							
3. Net IN-Migration	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name:	8
Occupation Name:	Registered Nurses
Occupation SOC:	29-1111

A. Lower projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		25	68	106	144	137	130	123
New demand during year		120	120	120	120	120	120	120
New production during year		77	82	82	127	127	127	127
Net migration during year		0	0	0	0	0	0	0
Net change during year		43	38	38	-7	-7	-7	-7
Carryover to next year (+/-)	25	68	106	144	137	130	123	116

B. Middle projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		50	123	191	259	282	305	328
New demand during year		150	150	150	150	150	150	150
New production during year		77	82	82	127	127	127	127
Net migration during year		0	0	0	0	0	0	0
Net change during year		73	68	68	23	23	23	23
Carryover to next year (+/-)	50	123	191	259	282	305	328	351

C. Upper projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		75	178	276	374	427	480	533
New demand during year		180	180	180	180	180	180	180
New production during year		77	82	82	127	127	127	127
Net migration during year		0	0	0	0	0	0	0
Net change during year		103	98	98	53	53	53	53
Carryover to next year (+/-)	75	178	276	374	427	480	533	586

Notes:

(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.

(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Demand Side Worksheet

EGR Name:	8
Occupation Name:	Registered Nurses
Occupation SOC:	29-1111

1. Estimated Job vacancies, end of 2005

Lower estimate	25
Middle estimate	50
Upper estimate	75

2. Projected number of job openings annually due to growth and net replacements:

Year	2006	2007	2008	2009	2010	2011	2012
A. Lower projection:							
Total, all industries in EGR	120	120	120	120	120	120	120
Hospitals	60	60	60	60	60	60	60
Ambulatory Health Care Svc	34	34	34	34	34	34	34
Nursing and Residential Care	10	10	10	10	10	10	10
B. Middle projection:							
Total, all industries in EGR	150	150	150	150	150	150	150
Hospitals	75	75	75	75	75	75	75
Ambulatory Health Care Svc	42	42	42	42	42	42	42
Nursing and Residential Care	13	13	13	13	13	13	13
C. Upper projection:							
Total, all industries in EGR	180	180	180	180	180	180	180
Hospitals	90	90	90	90	90	90	90
Ambulatory Health Care Svc	51	51	51	51	51	51	51
Nursing and Residential Care	15	15	15	15	15	15	15

Notes:

This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Supply Side Worksheet #1 ("Production")

EGR Name:	8
Occupation Name:	Registered Nurses
Occupation SOC:	29-1111

Projected "production" of new entrants into this occupation, by year

Year	2006	2007	2008	2009	2010	2011	2012
a. Graduates/completers of education and training programs in this EGR:							
Indiana University	23	23	23	23	23	23	23
Vincennes University	12	12	12	12	12	12	12
Ivy Tech Comm Coll	42	47	47	92	92	92	92
b. Other sources of entrants (other than in-migration)							
Source #1							
c. Total new supply	**77**	**82**	**82**	**127**	**127**	**127**	**127**

Supply Side Worksheet #2 ("Migration")

EGR Name:	8
Occupation Name:	Registered Nurses
Occupation SOC:	29-1111

Year	2006	2007	2008	2009	2010	2011	2012
1. Projected IN-migration of workers in this occupation to this EGR, by year							
a. From outside this EGR	0	0	0	0	0	0	0
b. From other occupations	0	0	0	0	0	0	0
							0
2. Projected OUT-migration of workers in this occupation to this EGR, by year							
a. To places outside this EGR	0	0	0	0	0	0	0
b. Into other occupations*	0	0	0	0	0	0	0
3. Net IN-Migration	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name:	8
Occupation Name:	Licensed Practical Nurses
Occupation SOC:	29-2061

A. Lower projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		10	-4	-21	-30	-14	2	18
New demand during year		59	59	59	59	59	59	59
New production during year		73	76	68	43	43	43	43
Net migration during year		0	0	0	0	0	0	0
Net change during year		-14	-17	-9	16	16	16	16
Carryover to next year (+/-)	10	-4	-21	-30	-14	2	18	34

B. Middle projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		19	20	18	24	55	86	117
New demand during year		74	74	74	74	74	74	74
New production during year		73	76	68	43	43	43	43
Net migration during year		0	0	0	0	0	0	0
Net change during year		1	-2	6	31	31	31	31
Carryover to next year (+/-)	19	20	18	24	55	86	117	148

C. Upper projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		38	54	67	88	134	180	226
New demand during year		89	89	89	89	89	89	89
New production during year		73	76	68	43	43	43	43
Net migration during year		0	0	0	0	0	0	0
Net change during year		16	13	21	46	46	46	46
Carryover to next year (+/-)	38	54	67	88	134	180	226	272

Notes:

(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.

(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Demand Side Worksheet

EGR Name:	8
Occupation Name:	Licensed Practical Nurses
Occupation SOC:	29-2061

1. Estimated Job vacancies, end of 2005

Lower estimate	10
Middle estimate	19
Upper estimate	38

2. Projected number of job openings annually due to growth and net replacements:

Year	2006	2007	2008	2009	2010	2011	2012
A. Lower projection:							
Total, all industries in EGR	59	59	59	59	59	59	59
Nursing and Residential Care Facilities	34	34	34	34	34	34	34
Ambulatory Health Care Services	12	12	12	12	12	12	12
Hospitals	13	13	13	13	13	13	13
B. Middle projection:							
Total, all industries in EGR	74	74	74	74	74	74	74
Nursing and Residential Care Facilities	43	43	43	43	43	43	43
Ambulatory Health Care Services	15	15	15	15	15	15	15
Hospitals	17	17	17	17	17	17	17
C. Upper projection:							
Total, all industries in EGR	89	89	89	89	89	89	89
Nursing and Residential Care Facilities	52	52	52	52	52	52	52
Ambulatory Health Care Services	18	18	18	18	18	18	18
Hospitals	20	20	20	20	20	20	20

Notes:

This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Supply Side Worksheet #1 ("Production")

EGR Name:	8
Occupation Name:	Licensed Practical Nurses
Occupation SOC:	29-2061

Projected "production" of new entrants into this occupation, by year

Year	2006	2007	2008	2009	2010	2011	2012
a. Graduates/completers of education and training programs in this EGR:							
Vincennes University	8	11	11	11	11	11	11
Ivy Tech Community College	65	65	57	32	32	32	32
b. Other sources of entrants (other than in-migration)							
Source #1							
c. Total new supply	**73**	**76**	**68**	**43**	**43**	**43**	**43**

Supply Side Worksheet #2 ("Migration")

EGR Name:	8
Occupation Name:	Licensed Practical Nurses
Occupation SOC:	29-2061

Year	2006	2007	2008	2009	2010	2011	2012
1. Projected IN-migration of workers in this occupation to this EGR, by year							
a. From outside this EGR	0	0	0	0	0	0	0
b. From other occupations							
2. Projected OUT-migration of workers in this occupation to this EGR, by year							
a. To places outside this EGR	0	0	0	0	0	0	0
b. Into other occupations							
3. Net IN-Migration	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name:	8
Occupation Name:	Nurses Aides, Orderlies and Attendants
Occupation SOC:	31-1012

A. Lower projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		36	32	28	24	20	16	12
New demand during year		46	46	46	46	46	46	46
New production during year		50	50	50	50	50	50	50
Net migration during year		0	0	0	0	0	0	0
Net change during year		-4	-4	-4	-4	-4	-4	-4
Carryover to next year (+/-)	36	32	28	24	20	16	12	8

B. Middle projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		45	52	59	66	73	80	87
New demand during year		57	57	57	57	57	57	57
New production during year		50	50	50	50	50	50	50
Net migration during year		0	0	0	0	0	0	0
Net change during year		7	7	7	7	7	7	7
Carryover to next year (+/-)	45	52	59	66	73	80	87	94

C. Upper projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		54	72	90	108	126	144	162
New demand during year		68	68	68	68	68	68	68
New production during year		50	50	50	50	50	50	50
Net migration during year		0	0	0	0	0	0	0
Net change during year		18	18	18	18	18	18	18
Carryover to next year (+/-)	54	72	90	108	126	144	162	180

Notes:

(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.

(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Demand Side Worksheet

EGR Name:	8
Occupation Name:	Nurses Aides, Orderlies, and Attendants
Occupation SOC:	31-1012

1. Estimated Job vacancies, end of 2005

Lower estimate	36
Middle estimate	45
Upper estimate	54

2. Projected number of job openings annually due to growth and net replacements:

Year	2006	2007	2008	2009	2010	2011	2012
A. Lower projection:							
Total, all industries in EGR	46	46	46	46	46	46	46
Nursing and Residential Care Facilities	29	29	29	29	29	29	29
Hospitals	11	11	11	11	11	11	11
B. Middle projection:							
Total, all industries in EGR	57	57	57	57	57	57	57
Nursing and Residential Care Facilities	35	35	35	35	35	35	35
Hospitals	14	14	14	14	14	14	14
C. Upper projection:							
Total, all industries in EGR	68	68	68	68	68	68	68
Nursing and Residential Care Facilities	42	42	42	42	42	42	42
Hospitals	16	16	16	16	16	16	16

Notes:

This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Supply Side Worksheet #1 ("Production")

EGR Name:	8
Occupation Name:	Nurses Aides, Orderlies, and Attendants
Occupation SOC:	31-1012

Projected "production" of new entrants into this occupation, by year

Year	2006	2007	2008	2009	2010	2011	2012
a. Graduates/completers of education and training programs in this EGR:							
Ivy Tech Community College	50	50	50	50	50	50	50
b. Other sources of entrants (other than in-migration)							
Source #1							
etc. (add as necessary)							
c. Total new supply	**50**	**50**	**50**	**50**	**50**	**50**	**50**

Supply Side Worksheet #2 ("Migration")

EGR Name:	8
Occupation Name:	Nurses Aides, Orderlies, and Attendants
Occupation SOC:	31-1012

Year	2006	2007	2008	2009	2010	2011	2012
1. Projected IN-migration of workers in this occupation to this EGR, by year							
a. From outside this EGR	0	0	0	0	0	0	0
b. From other occupations							
2. Projected OUT-migration of workers in this occupation to this EGR, by year							
a. To places outside this EGR	0	0	0	0	0	0	0
b. Into other occupations							
3. Net IN-Migration	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name:	8
Occupation Name:	Respiratory Therapist
Occupation SOC:	29-1126

A. Lower projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		10	20	17	14	11	8	5
New demand during year		10	10	10	10	10	10	10
New production during year		0	13	13	13	13	13	13
Net migration during year		0	0	0	0	0	0	0
Net change during year		10	-3	-3	-3	-3	-3	-3
Carryover to next year (+/-)	10	20	17	14	11	8	5	2

B. Middle projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		13	26	26	26	26	26	26
New demand during year		13	13	13	13	13	13	13
New production during year		0	13	13	13	13	13	13
Net migration during year		0	0	0	0	0	0	0
Net change during year		13	0	0	0	0	0	0
Carryover to next year (+/-)	13	26	26	26	26	26	26	26

C. Upper projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		16	32	35	38	41	44	47
New demand during year		16	16	16	16	16	16	16
New production during year		0	13	13	13	13	13	13
Net migration during year		0	0	0	0	0	0	0
Net change during year		16	3	3	3	3	3	3
Carryover to next year (+/-)	16	32	35	38	41	44	47	50

Notes:

(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.

(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.
B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.
C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Demand Side Worksheet

EGR Name:	8
Occupation Name:	Respiratory Therapist
Occupation SOC:	29-1126

1. Estimated Job vacancies, end of 2005

Lower estimate	10
Middle estimate	13
Upper estimate	16

2. Projected number of job openings annually due to growth and net replacements:

Year	2006	2007	2008	2009	2010	2011	2012
A. Lower projection:							
Total, all industries in EGR	10	10	10	10	10	10	10
Hospitals	10	10	10	10	10	10	10
B. Middle projection:							
Total, all industries in EGR	13	13	13	13	13	13	13
Hospitals	13	13	13	13	13	13	13
C. Upper projection:							
Total, all industries in EGR	16	16	16	16	16	16	16
Hospitals	16	16	16	16	16	16	16

Notes:

This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Supply Side Worksheet #1 ("Production")

EGR Name:	8
Occupation Name:	Respiratory Therapist
Occupation SOC:	29-1126

Year	2006	2007	2008	2009	2010	2011	2012
a. Graduates/completers of education and training programs in this EGR:							
Ivy Tech Community College	0	13	13	13	13	13	13
b. Other sources of entrants (other than in-migration)							
Source #1							
c. Total new supply	**0**	**13**	**13**	**13**	**13**	**13**	**13**

Supply Side Worksheet #2 ("Migration")

EGR Name:	8
Occupation Name:	Respiratory Therapist
Occupation SOC:	29-1126

Year	2006	2007	2008	2009	2010	2011	2012
1. Projected IN-migration of workers in this occupation to this EGR, by year							
a. From outside this EGR	0	0	0	0	0	0	0
b. From other occupations							
2. Projected OUT-migration of workers in this occupation to this EGR, by year							
a. To places outside this EGR	0	0	0	0	0	0	0
b. Into other occupations							
3. Net IN-Migration	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name:	8
Occupation Name:	Electrical and Electronics Engineering Technicians
Occupation SOC:	17-3023

A. Lower projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		5	53	97	138	179	219	260
New demand during year		65	65	65	65	65	65	65
New production during year		17	21	24	24	25	24	24
Net migration during year		0	0	0	0	0	0	0
Net change during year		48	44	41	41	40	41	41
Carryover to next year (+/-)	5	53	97	138	179	219	260	301

B. Middle projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		10	74	134	191	248	304	361
New demand during year		81	81	81	81	81	81	81
New production during year		17	21	24	24	25	24	24
Net migration during year		0	0	0	0	0	0	0
Net change during year		64	60	57	57	56	57	57
Carryover to next year (+/-)	10	74	134	191	248	304	361	418

C. Upper projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		19	99	175	248	321	393	466
New demand during year		97	97	97	97	97	97	97
New production during year		17	21	24	24	25	24	24
Net migration during year		0	0	0	0	0	0	0
Net change during year		80	76	73	73	72	73	73
Carryover to next year (+/-)	19	99	175	248	321	393	466	539

Notes:

(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.

(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Demand Side Worksheet

EGR Name:	8
Occupation Name:	Electrical and Electronics Engineering Technicians
Occupation SOC:	17-3023

1. Estimated Job vacancies, end of 2005

Lower estimate	5
Middle estimate	10
Upper estimate	19

2. Projected number of job openings annually due to growth and net replacements:

Year	2006	2007	2008	2009	2010	2011	2012
A. Lower projection:							
Total, all industries in EGR	65	65	65	65	65	65	65
PS & T (Primarily Crane related)	65	65	65	65	65	65	65
B. Middle projection:							
Total, all industries in EGR	81	81	81	81	81	81	81
PS & T (Primarily Crane related)	81	81	81	81	81	81	81
C. Upper projection:							
Total, all industries in EGR	97	97	97	97	97	97	97
PS & T (Primarily Crane related)	97	97	97	97	97	97	97

Notes:

This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Supply Side Worksheet #1 ("Production")

EGR Name:	8
Occupation Name:	Electrical and Electronics Engineering Technicians
Occupation SOC:	17-3023

Projected "production" of new entrants into this occupation, by year

Year	2006	2007	2008	2009	2010	2011	2012
a. Graduates/completers of education and training programs in this EGR:							
Vincennes University	6	7	10	9	10	10	10
Ivy Tech Comm College	11	14	14	15	15	14	14
b. Other sources of entrants (other than in-migration)							
Source #1							
c. Total new supply	**17**	**21**	**24**	**24**	**25**	**24**	**24**

Supply Side Worksheet #2 ("Migration")

EGR Name:	8
Occupation Name:	Electrical and Electronics Engineering Technicians
Occupation SOC:	17-3023

Year	2006	2007	2008	2009	2010	2011	2012
1. Projected IN-migration of workers in this occupation to this EGR, by year							
a. From outside this EGR	0	0	0	0	0	0	0
b. From other occupations							
2. Projected OUT-migration of workers in this occupation to this EGR, by year							
a. To places outside this EGR	0	0	0	0	0	0	0
b. Into other occupations							
3. Net IN-Migration	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name:	8
Occupation Name:	Drafting, Engineering and Mapping Technicians, all other
Occupation SOC:	17-3099 (OES Only)

A. Lower projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		3	-5	-17	-29	-43	-58	-73
New demand during year		8	8	8	8	8	8	8
New production during year		16	20	20	22	23	23	23
Net migration during year		0	0	0	0	0	0	0
Net change during year		-8	-12	-12	-14	-15	-15	-15
Carryover to next year (+/-)	3	-5	-17	-29	-43	-58	-73	-88

B. Middle projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		6	0	-10	-20	-32	-45	-58
New demand during year		10	10	10	10	10	10	10
New production during year		16	20	20	22	23	23	23
Net migration during year		0	0	0	0	0	0	0
Net change during year		-6	-10	-10	-12	-13	-13	-13
Carryover to next year (+/-)	6	0	-10	-20	-32	-45	-58	-71

C. Upper projection:

Total, all industries in EGR

Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		9	5	-3	-11	-21	-32	-43
New demand during year		12	12	12	12	12	12	12
New production during year		16	20	20	22	23	23	23
Net migration during year		0	0	0	0	0	0	0
Net change during year		-4	-8	-8	-10	-11	-11	-11
Carryover to next year (+/-)	9	5	-3	-11	-21	-32	-43	-54

Notes:

(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.

(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Demand Side Worksheet

EGR Name:	8
Occupation Name:	Drafting, Engineering and Mapping Technicians, all other
Occupation SOC:	17-3099 (OES only)

1. Estimated Job vacancies, end of 2005

Lower estimate	3
Middle estimate	6
Upper estimate	9

2. Projected number of job openings annually due to growth and net replacements:

Year	2006	2007	2008	2009	2010	2011	2012
A. Lower projection:							
Total, all industries in EGR	8	8	8	8	8	8	8
Public Admin (Crane)	8	8	8	8	8	8	8
B. Middle projection:							
Total, all industries in EGR	10	10	10	10	10	10	10
Public Admin (Crane)	10	10	10	10	10	10	10
C. Upper projection:							
Total, all industries in EGR	12	12	12	12	12	12	12
Public Admin (Crane)	12	12	12	12	12	12	12

Notes:

This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.

B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.

C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Supply Side Worksheet #1 ("Production")

EGR Name:	8
Occupation Name:	Drafting, Engineering and Mapping Technicians, all other
Occupation SOC:	17-3099 (OES only)

Projected "production" of new entrants into this occupation, by year

Year	2006	2007	2008	2009	2010	2011	2012
a. Graduates/completers of education and training programs in this EGR:							
Vincennes Univeristy	5	6	6	7	8	9	9
Ivy Tech Community College	11	14	14	15	15	14	14
b. Other sources of entrants (other than in-migration)							
Source #1							
c. Total new supply	**16**	**20**	**20**	**22**	**23**	**23**	**23**

Supply Side Worksheet #2 ("Migration")

EGR Name:	8
Occupation Name:	Drafting, Engineering and Mapping Technicians, all other
Occupation SOC:	17-3099 (OES only)

Year	2006	2007	2008	2009	2010	2011	2012
1. Projected IN-migration of workers in this occupation to this EGR, by year							
a. From outside this EGR	0	0	0	0	0	0	0
b. From other occupations							
2. Projected OUT-migration of workers in this occupation to this EGR, by year							
a. To places outside this EGR	0	0	0	0	0	0	0
b. Into other occupations							
3. Net IN-Migration	**0**	**0**	**0**	**0**	**0**	**0**	**0**